Southern California's Computer Magazine

April 19, 1993 • #108

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In This Issue: Windows MIDI, 3DO, Amiga At Warner Bros., And More

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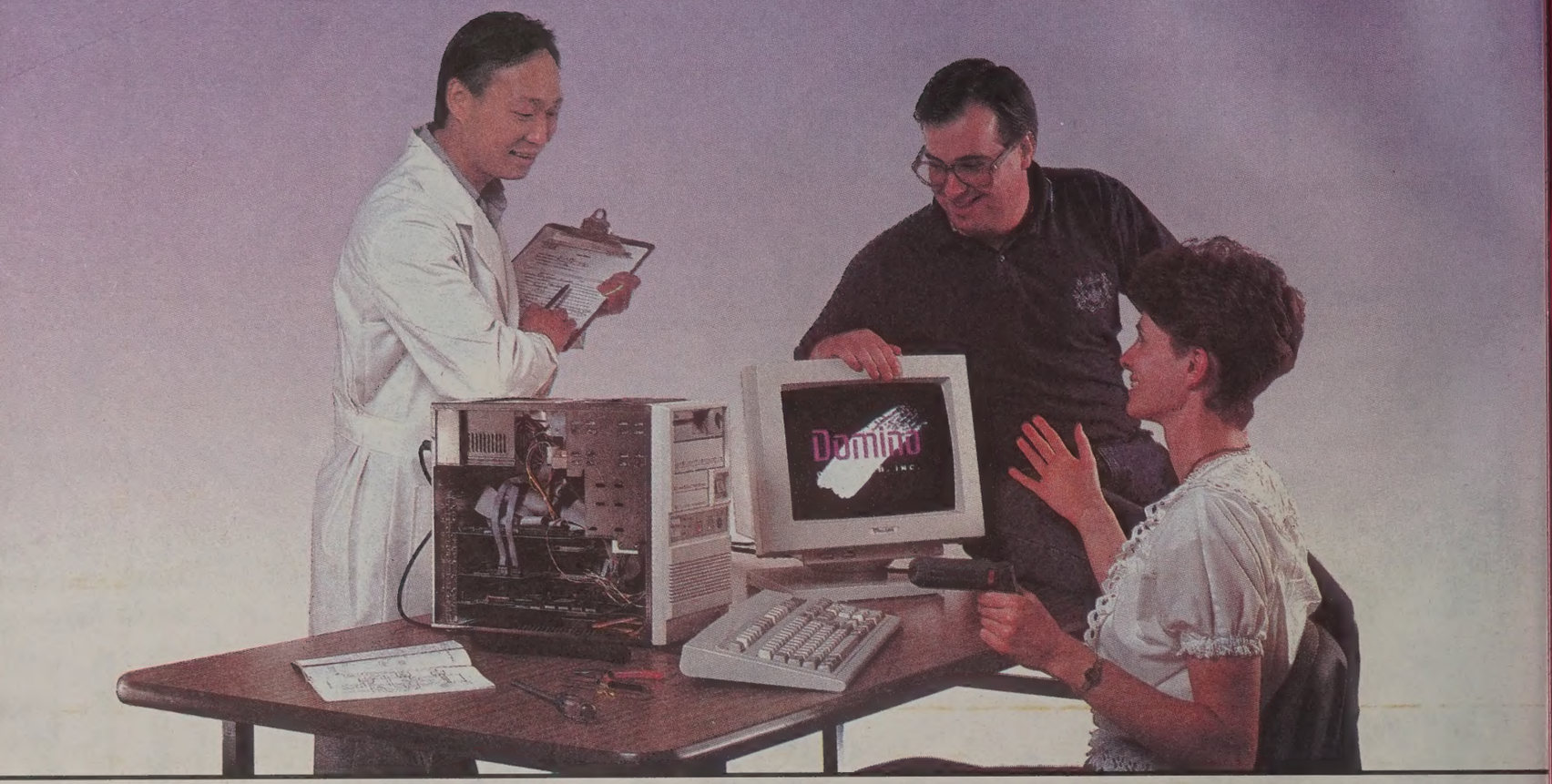

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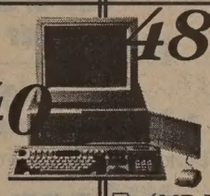

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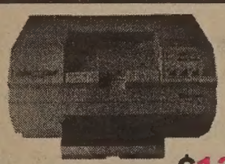

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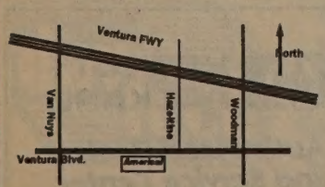

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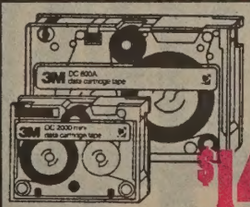

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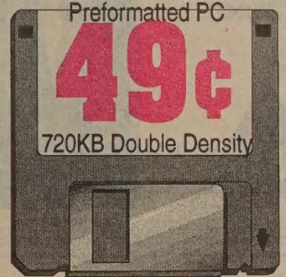

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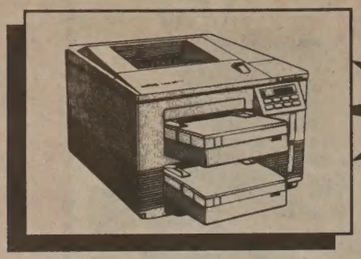

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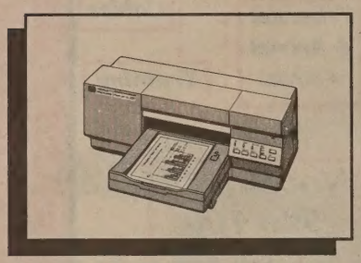

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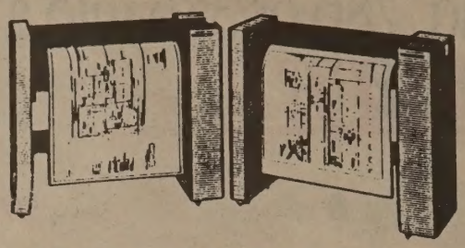

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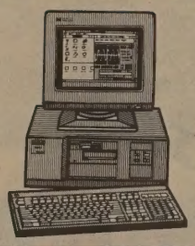

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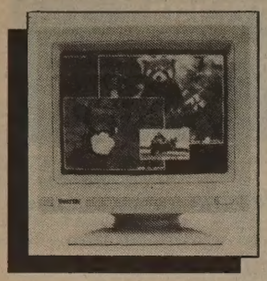

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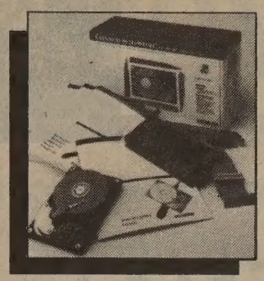

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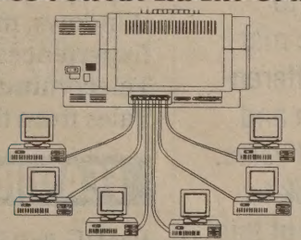

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A multinational, multi-organization effort, COMPUEXPO is based on the premise that the next ten years of the computer industry will not be dominated by a few key players; rather, it will be characterized by complex alliances among entrepreneurs, manufacturers, and other service providers in order to create market differentiation and added value. We talk to some of this year's organizers, including CompuExpo President Allen Yu, starting on page 38.

—ME

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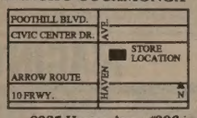

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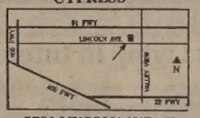

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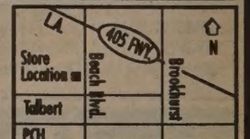

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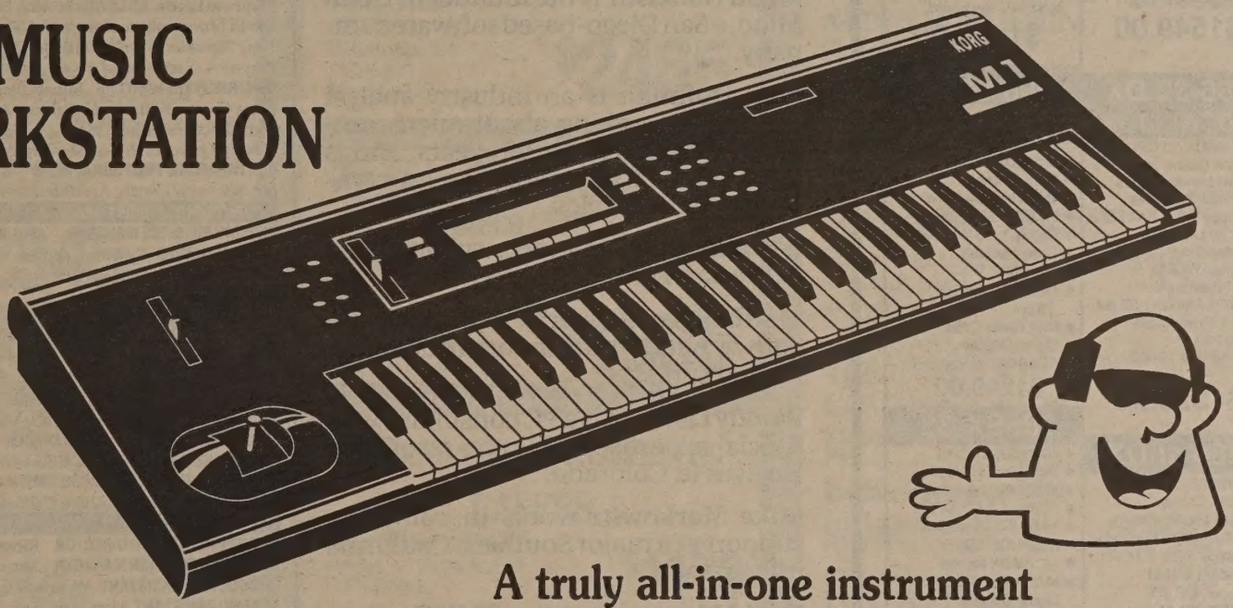

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Correction

In our delight at being able to bring you Mitch Kapor's "Computer Spies" in Issue #106, we neglected to note that Mitch Ratcliffe, Editor-at-Large of *MacWeek*, provided research assistance for the article.

We apologize to both Mitches, and eagerly await their next contribution, which should be along next month...

—Eds.

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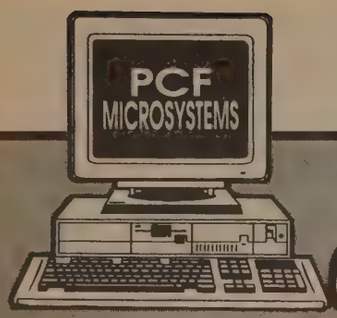

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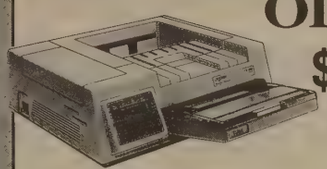

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INDUSTRY INSIGHT

Steve Jackson Wins Judgment Against Secret Service; UNIX Vendors Unite Against Microsoft

BY PAUL HOFFMAN

STEVE JACKSON GAMES CASE: IMPLICATIONS FOR COMPUTER USERS AND BBS OPERATORS

In a widely followed case involving privacy and government seizures, Steve Jackson Games of Austin, TX, won a major lawsuit against the US Secret Service and other government agencies that had raided the game manufacturer, then kept its computers for many months. The game company won more than $50,000 in damages, and its attorneys will be paid by the government.

More important, however, is the exposure that the government's bumbling received. After the raid and publicity that followed, it became obvious that the government agents had no idea what they were doing or how to analyze what they had.

The concept that the government could take all the assets of a bulletin board system, put it out of business, and never file charges is indeed scary for computer users.

The case began in 1990 when the Secret Service raided the game manufacturer's offices, seizing its computers with a warrant stating that the bulletin board system run on one of SJG's computers had stolen material on it—specifically, the notorious "E911" document, which at the time was considered to be stolen from Bell South and potentially dangerous to the security of the phone system (it later turned out to be both publicly available and innocuous). The only connection to Steve Jackson Games was that a company employee was known to have had possession of the document. Before the raid, the Secret Service did not attempt to find out whether or not the document was even on the system, which they could have ascertained easily.

After the raid, SJG, with the help of the Electronic Frontier Foundation, sued the government on many counts and won on most of them. The most serious charge was that the seizure directly violated the Privacy Protection Act of 1980, which was aimed at preventing the government from harassing publishers. Because SJG was a publisher of both books and games, the raid was clearly illegal. As recorded on videotape, SJG employees told the Secret Service people about the company's status as a publisher under the law during the raid, and complained afterwards, but the raiders claimed not to have known about the law (even though one was a lawyer).

The judge, Sam Sparks of the federal district court in western Texas, ruled that the warrant itself was legal but "simply sloppy and not carefully done." He listed numerous incorrect statements in the warrant, but did not give SJG any damages for the faulty warrant.

The more serious part of the fiasco was that the government knew that by keeping all the computers of SJG, there was a good chance that they could put the company out of business. As the judge put it, "Agent Foley [of the Secret Service] must have known his seizure of computers, printers, disks, and other materials and his refusal to provide copies represented a risk of substantial harm to Steve Jackson Games, Inc.—under circumstances where he had no reason to believe the corporation or its owner was involved in criminal activity." He concluded that the government's refusal to return the equipment and copies of the hard disks "cannot be justified and unquestionably caused economic damage to the corporation."

The judge was even harsher on the Secret Service for reading private electronic mail on the bulletin board system, then lying about it. "The Secret Service denies that its personnel or its delegates read the private electronic communications stored in the seized materials and specifically allege that this information was reviewed by use of key search words only. Additionally, the Secret Service denies the deletion of any information seized with two exceptions of 'sensitive' or 'illegal' information, the deletion of which was consented to by Steve Jackson. However, the preponderance of the evidence, including common sense, establishes that the Secret Service personnel or its delegates did read all electronic communications seized and did delete certain information and communications in addition to the two documents admitted deleted. The deletions by the Secret Service, other than the two documents consented to by Steve Jackson, were done without consent and cannot be justified."

The larger issues brought up by the seizure have been widely discussed on the nets for

continued on page 17

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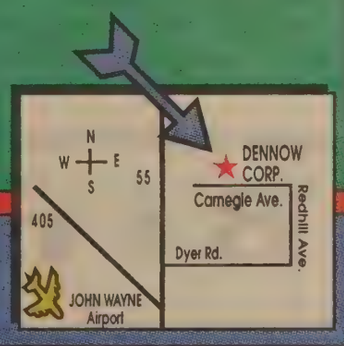

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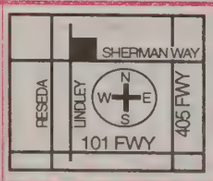

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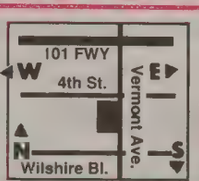

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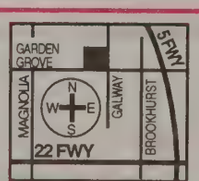

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continued from page 12

years. Clearly, the original "bust" was meant to be a warning to hackers; also clearly, it went awry. The concept that the government could take all the assets of a bulletin board system, put it out of business, and never file charges is indeed scary for computer users. One only needs to look at the zeal of the US Drug Enforcement Agency when it gets warrants to see how frightening the prospects could get for computer users. The DEA can seize property and sell it to fund their activities, without even bringing a single charge against the owner. Recently, a Ventura County district attorney said that the DEA was so interested in getting a $5 million ranch that was supposedly used to grow marijuana that they put together a trumped-up warrant and tried to seize the ranch, killing the owner during the raid; no marijuana was found and no charges have been brought. If the Secret Service gets such powers in its raids on supposed computer criminals, all the time claiming to not know the laws, the situation could be just as dire.

While many expected this to be the least likely subject of agreement, the group came up with a neat trick: everyone agreed to support three different networking products.

UNIX VENDORS TRY YET AGAIN TO AGREE ON STANDARDS

It's spring, so the different computer manufacturers who support UNIX must be trying to form another alliance.

There's a much stronger sense of urgency this year due to their previous well-documented failures to form alliances, not to mention a new major threat: Microsoft's Windows NT. The former is simply an embarrassment; the latter could be a real problem, depending on how well Microsoft markets Windows NT to the single-user workstation market.

Even though the announcement was made by the biggest companies in the UNIX business (IBM, Hewlett-Packard, Santa Cruz Operation, SunSoft, Univel, and so on), many people in the industry are skeptical that they can pull off the unification after so many earlier failed attempts. The announcement, made at last month's UniForum convention, said that the companies would work together to define a specification for a "common open software environment across their UNIX system platforms." Of course, that's what the same companies have been trying to do for years.

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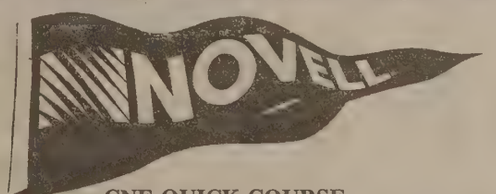

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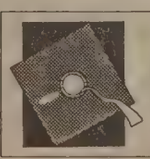

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Basically, the companies agreed to a common desktop environment, graphics, object handling, multimedia, network protocol, and network management. As expected, the new standard will be a hodge-podge of existing software from different companies, with a few novel twists that might help the standard get off the ground. The expected standards will include:

•Desktop environment: The standard will be based on the X Window 11 software. It will incorporate parts of Hewlett-Packard's popular Visual User Environment (VUE), IBM's much-maligned Common User Access (CUA) model, OSF's Motif, and SunSoft's Open Look. The resulting mess will be foisted on developers later this year. By choosing one of each, the new consortium is assuring that no major programs will run under the new system for at least six months (and more likely a year) from the time that the standard is finalized, due to the significant amount of programming involved in meeting all the new interface changes.

•Graphics: As mentioned above, the companies agreed to use X Windows. This came as a boon for almost everyone except Sun, who is having to phase out most of Open Look.

•Object handling: Due to Microsoft's finally setting a minimal object handling standard for Windows NT, the consortium agreed that there had to be a common object handler in the new UNIX. They say that they will support the Common Object Request Broker (COBRA) standard developed by the industry-wide Object Management Group (OMG). COBRA is not finished, and the companies in the consortium will probably want to each put in their own two cents' worth on how it should work. Unfortunately, this means that object handling won't be fully supported for at least two years.

•Multimedia: Everybody's favorite buzzword gets its due in the new UNIX. Although the tools needed for such a specification are available now, expect this to also be a political morass that will end up with a messy programmer's interface.

•Network protocol: While many expected this to be the least likely subject of agreement, the group came up with a neat trick: everyone agreed to support three different networking products. Thanks to the tremendous amount of work done on making internetworking a reality, it is not that difficult to support connections to more than one type of network. Thus, all members agreed to "sell, deliver, and support OSF's DCE, SunSoft's ONC+, and Novell/Univel's NetWare UNIX client networking products." In short, they agree to support their favorite standard best, but agree to meet the common client demands to support other company's network products as well. If this scheme works, it may ease the problems of network administrators everywhere; if not, it will certainly spell the doom of the consortium.

•Network management: The companies agreed to agree to a common network management suite. No one seriously believes that this will happen any time soon.

In the meantime, Microsoft is moving ahead with the much delayed Windows NT. It has sent out another general release beta test, although it is still missing some significant components.

Microsoft may be able to steal some of the UNIX market away from the workstation companies if it can deliver even a reasonable product that works well and runs Windows 3.1 programs by the end of this year. If Windows NT is optimized for Intel's forthcoming Pentium processor (or even if a few of the critical code segments are optimized), Microsoft may be able to get more attention for its product than the UNIX marketers can for theirs.

continued on page 86

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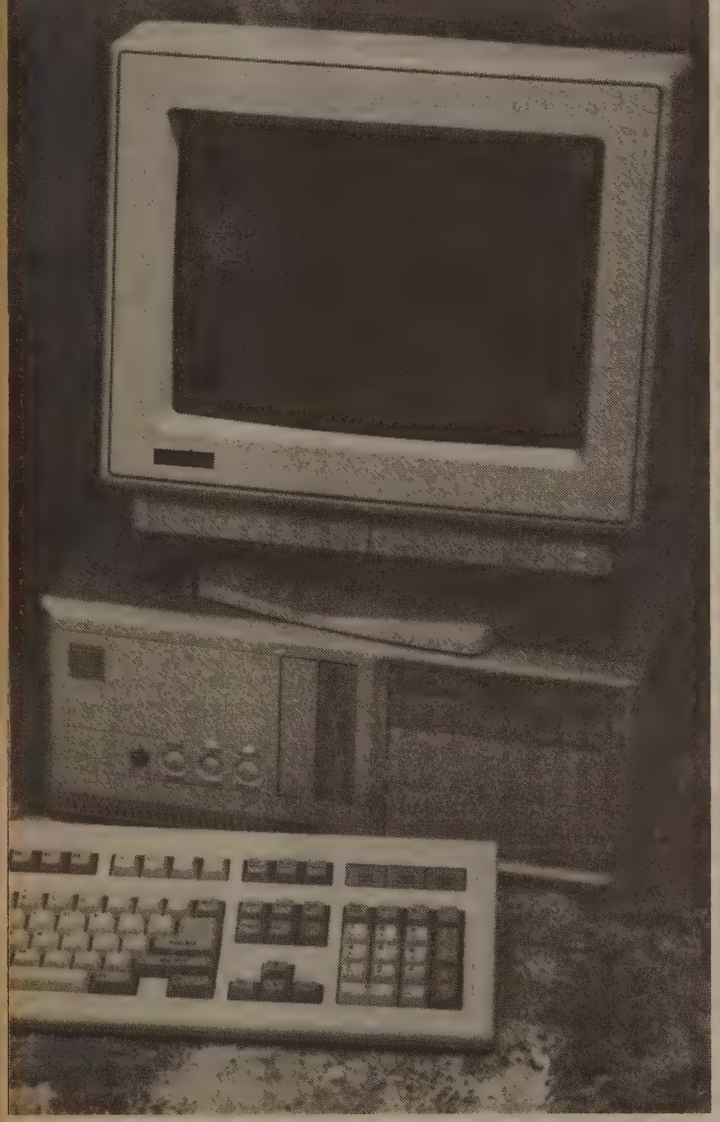

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Modem Access To Legislation; Computer-Literate Justice

We Can Help Shape The Future— Or We Can Just Watch As Others Do It To Us.

BY JIM WARREN

LEGISLATION FOR DIALUP ACCESS TO LEGISLATIVE PROCESS

On March 4th, a bill was introduced in Sacramento that would require virtually all California state legislative information to be available to the public by modem.

It explicitly includes complete text of each bill and each amendment, bill history, bill status, veto messages, agendas, legislative schedules, Senate and Assembly daily files, etc. It states, "The State Library shall establish a system whereby the information [listed here, plus much more] is available to the public by means of access through a computer modem."

This would permit *timely* access to complete legislative information—*essential* for effective citizen involvement. It would *begin* to make California's governmental information as accessible to California residents as Hawaii's has been for several years to Hawaii residents.

For the first time—at little or no cost—citizens, community groups, activist organizations, unions, newspaper reporters, editorial writers, cities, towns, counties, schools, and all other individuals and groups in [and beyond] the state could know most of what is happening in the Legislature almost as fast as onsite lobbyists.

But—this is going to be an uphill battle and will require aggressive public support.

• The Legislature currently sells its comprehensively computerized legislative records and bills-in-progress in electronic form to high-profit, high-priced information distributors for hundreds of thousands of dollars per year.

• Big-bucks lobbyists can afford access, but cost shuts out "mere" citizens and many others. And *some* lobbyists would much prefer to keep it that way.

• Information distributors—especially current contractors such as LegiTech, StateNet and Mead Data Central—seem certain to channel significant loot to those legislators who are willing to skewer low-cost citizen access to their legislature. And one or two of those information distributors are owned by powerful publishers.

• Any requirement for new funding will almost certainly kill the bill. But, there are numerous ways the State Library could implement it at little or no cost to the Library or the state.

Downloads could be cracker-safe, output-only, off-hours, daily feeds to several library and/or nonprofit and/or academic networked computers, each committing to allow free dial-up by still other host computers—as is the custom among thousands of Internet hosts currently. The US Supreme Court decisions are immediately available, globally, via this mechanism. If the Legislature won't allocate extra funds, the minimal necessary equipment could be donated by computer corporations; private-sector and nonprofit funding could pay operational costs, if they couldn't be provided by *pro bono* volunteers.

The bill (AB 1624) was introduced by Assembly Member Debra Bowen, State Capitol #3126, Sacramento, CA 95814; voice phone (916)445-8528. Supporters must be vocal and vehement.

REALIZABLE FANTASIES

GOVERNMENT DATA DIDDLING UNNEEDED

The Legislative Data Center and the State Library do not *need* to do *any* processing of the data, except take the specified legislative information in whatever form it's used internally and download it to some open-access systems. Once the data is publicly available in machine-readable form, all sorts of nonprofit groups and for-profit entrepreneurs can process it—index, cross-reference, summarize, publish it, and otherwise make *timely* use of it, limited only by their imaginations and resources.

The high-priced distributors would probably continue to pay for their current (elite) access. Or they could download data from the primary open-access systems—just as though they weren't more important than the mere voters and citizens of the state. They could certainly continue to provide convenience and value-added services to their high-paying clients. The only thing they—and their clients—would lose would be functional monopoly over effective public access to these invaluable public assets.

SUPREMES' NEW SINGER COULD PROTECT ELECTRONIC CIVLIB

More and more explorers and settlers in "cyberspace" are expressing increasing concern about protecting the principles reflected in our 200-year-old Constitution against encroachments justified by government on the basis of new technologies. That is:

• Protecting electronic distribution of information and opinion just as print press in newspapers and magazines is protected.

• Protecting network-based personal expression just as voice speech in Hyde Park is protected.

• Protecting private electronic discussions from the chilling effect of systematic, automated electronic surveillance just as face-to-face assembly is protected.

• Protecting electronic mail from bulk seizure and search, just as paper mail in a post office is protected from office-wide search or seizure.

And much more.

The Prez will shortly choose his first nominee for the US Supreme Court. At least one, and perhaps two openings on the High Court will occur within a year. There is already an administration team reviewing candidates. It's likely that Clinton will name his first nominee before summer. Recently, a number of "short-lists" of his most likely choices have been widely publicized.

Only one person named in almost all of those short lists has prominently demonstrated knowledge of, and concern about, technological threats to constitutional principles—Harvard Law Professor

continued on page 49

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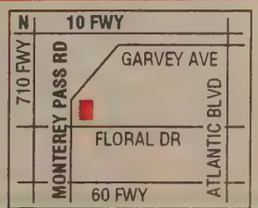

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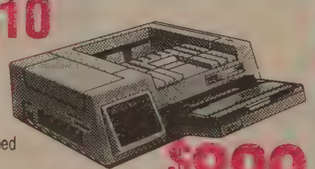

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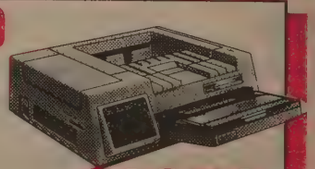

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The Casio B.O.S.S. series of personal organizers has always been the poor cousin to the more successful, and typically better-designed, Sharp Wizards; it's generally been less expensive than the Wizards, but you got what you paid for (or maybe slightly less). The keyboards were poor (paradoxically, Casio once released an "upgrade" to an older B.O.S.S. series, but the "upgrade" included changing from real keys to a flat-panel keyboard); the user-interface was clunky; and the overall appearance was cheap and flimsy compared to the slick design of the Sharp Wizards and organizers. However, with the SF-R20, Casio seems determined to cut into Sharp's market share with a radical redesign.

And I must say that they have done a very good job, succeeding in almost every way in their attempt to improve upon the earlier machines. With only a few design flaws to speak of, the SF-R20, available for around $300 in your local consumer electronics stores, is an entirely different machine from the earlier B.O.S.S. organizers, a tremendous improvement over them, and certainly strong competition for the Sharp Wizard line. The SF-R20 features a new exterior design, much more rugged construction, a large screen capable of displaying ten forty-character lines, a QWERTY keyboard (with real, though small, keys), and a much cleaner user interface, including extensive context-sensitive help.

The 256K-RAM SF-R20 comes with a variety of standard organizer functions (address book, memo pad, calculator, calendar/scheduler, clock, and world time), as well as a to-do list, a business card function, an anniversary function, and a "free file" function, used for storing free-form database information.

Most interestingly, it includes a full-function spreadsheet (Lucid 3D), complete with simple macro capabilities (but no graphing). The Lucid spreadsheet will convert Lotus 1-2-3 spreadsheets (up to 32K) into its internal format. This makes the SF-R20 not only a full-function organizer but also a powerful general-purpose financial calculator (among other things).

With the SF-R20, Casio seems determined to cut into Sharp's market share with a radical redesign. They have done a very good job, succeeding in almost every way in their attempt to improve upon the earlier machines.

The unit measures 7 1/8" x 3 7/8" x 7/8", making it almost identical in size and shape to the Sharp Wizard OZ-8000 series. The SF-R20's exterior case is sleek and attractive, unlike previous Casio palmtops, and features a particularly rugged hinge mechanism which is apparently intended to reduce problems with the display-keyboard connection during extensive use (this occasionally occurs with the Sharp Wizard series).

Unlike previous Casio B.O.S.S. machines, this one is relatively intuitive to use. Whenever there are difficulties, you can always hit the HELP button, which gives in most cases very clear context-sensitive help. You can get immediate feedback without having to dig out the manual.

One minor confusion has to do with the profusion of different "enter" keys; unlike the Wizard, which has two (a carriage return key and an "enter" key which is used to finish a data entry), the Casio has three (a carriage return key, a "next" key, and a "set" key), and it's not always clear which one is required in the given situation. However, when one doesn't work, you can always try another, and after a while you get the hang of which key is used in which situation.

The keyboard is small, of course, but quite usable, with one exception: instead of using a standard shift key, you have to toggle the shift mode on by hitting SHIFT, then the character you want capitalized. This design is left over from the bad old days; the original Sharp Wizards also had this problem, though the newer Wizards have "normal" shift keys (you hold down the shift key to capitalize the letters as you type). The Casio's flaw is not as bad as it sounds, however, because after you hit the shift key, it will only capitalize the next character you type, automatically returning to lower-case mode after that next key has been pressed.

The display is large and readable; the big-character mode can be read at a considerable

continued on page 50

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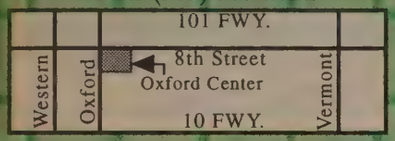

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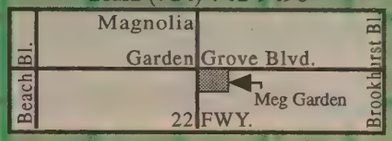

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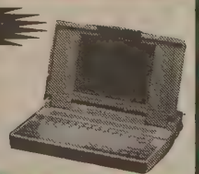

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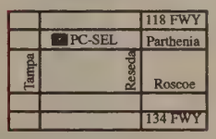

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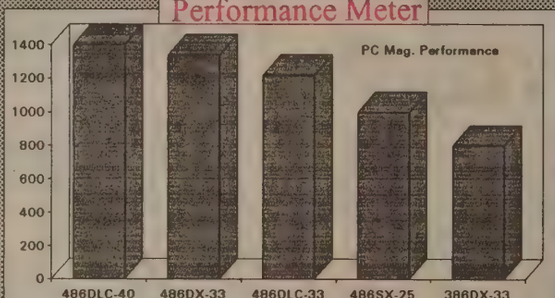

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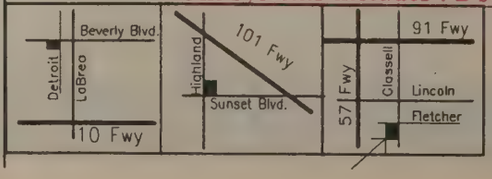

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Windows & Monitors With A Notebook Computer

Windows Is Changing The Features And Peripherals We Want With Our Notebook Computer

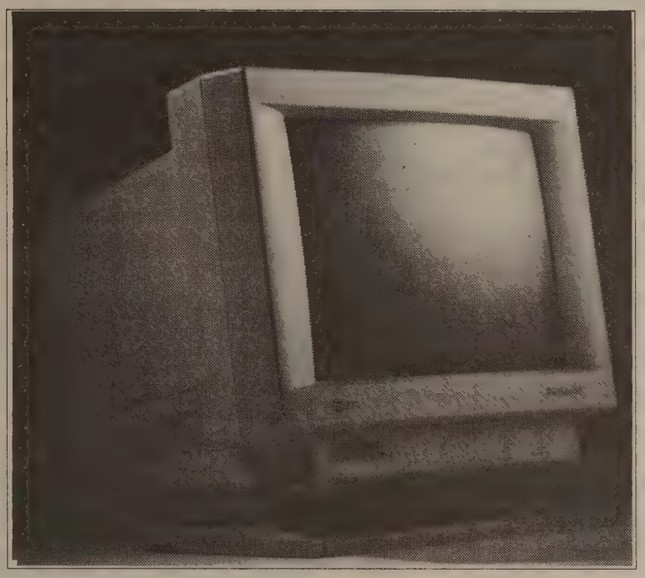
BY ED KAHN

In the past, I regarded one brand of computer as pretty much the same as another so long as it had the features I wanted. My primary concerns were the feel of the keyboard and the look of the display. After that, it was a matter of deciding which additional features I desired and then shopping for the best price. Typically, the choices included: the size of the hard drive, the speed of the computer, and the amount of memory. A final consideration was the strength of the company. You wanted to be sure that the company would be there when you needed service—in or out of warranty.

Most computers come in fairly standard configurations. The almost universal acceptance of Windows has forced me to reevaluate the features I once considered sufficient. In the old days of straight MS-DOS applications, I was generally content with 1MB of memory. Even though I required more for my desktop unit, I regarded a notebook or laptop as a module of my computer system and made compromises in what I wanted from an "On-The-Go" unit. But once I started using Windows, it was not practical to constantly go between Windows and non-Windows applications. For instance, I do not like to run a Windows word processor or spreadsheet on my desktop computer and a non-Windows application on my portable.

Four megabytes of RAM has become part of my minimum configuration, regardless of what others recommend. Also, while speed was not an important consideration for many DOS- based applications, it is much more of a factor when you run a graphical interface like Windows. A slow system—say slower then 25MHz—can be irritating. Thus, Windows has upped the ante for all of us.

The result is that as we need more complex and expensive systems and as portables become more capable, many users find that they can get along just fine with a portable as their only computer. Add a keyboard and color monitor at your primary location and unplug them when you go on the road. You will need a serial port for connecting a mouse and should get a built-in modem to eliminate clutter when you travel. Along with a hard drive of at least 80MB, you should be able to do everything with a single computer.



Unless your primary use of the portable is away from a usual location, I still recommend buying a portable with a monochrome display and getting a larger color monitor for your home base.

I find working with Windows on a monochrome display to be adequate for occasional use, but for day in and day out work, I prefer a good color monitor. While it is possible to buy portables with excellent color displays, it is still quite expensive and has the disadvantage of significantly shortening the length of time you can work on batteries before they need recharging. Unless your primary use of the portable is away from a usual location, I still recommend buying a portable with a monochrome display and getting a larger color monitor for your home base.

In the old days, a 12" monitor was good enough. With Windows and high-resolution graphics, the smallest monitor should be a 15" model. I have been looking for a good monitor to use with a portable and finally found a reasonably priced unit I love. ETC Computer has just released a 15" flat screen model that works perfectly with a portable—or desktop, for that matter. The View Magic CA-1565C has a .28mm dot pitch, which makes for clean and crisp images and offers resolutions up to 1024 x 768. The monitor is non-interlaced.

There are lots of things to like about this monitor. Besides a wonderful display, it is easy to use. Aren't all monitors easy to use? Don't you just plug them in and turn them on? It used to be more that way, but now there are actually a number of adjustments that you will want to make to get your display to fill the screen without distortion. The controls are on the front, which I really appreciate after reaching behind other monitors and then not being able to see the screen without my nose scrunched against the glass. This monitor lets you comfortably adjust every variable.

The front panel offers controls to make eight types of adjustments. These include brightness, contrast, horizontal phase and size, vertical center and size, pincushion and trapezoid adjustments. (These last tow settings are to make sure the right and left borders are both straight and parallel.) To the left of the adjustment controls, there is an LCD readout that displays the settings. The monitor comes with defaults plus two other memories that store your selections. This means you can set up the monitor for several different applications or computers and not have to fiddle with the controls each time you switch.

If you need an inexpensive monitor that does the job, this one is worth searching for. While ETC sells a lot of displays to other manufacturers, they have also begun to develop a network of retailers to offer you this excellent monitor. ■

RESOURCES:
View Magic-1565C, $699
ETC Computer, Inc.
46711 Fremont Blvd.
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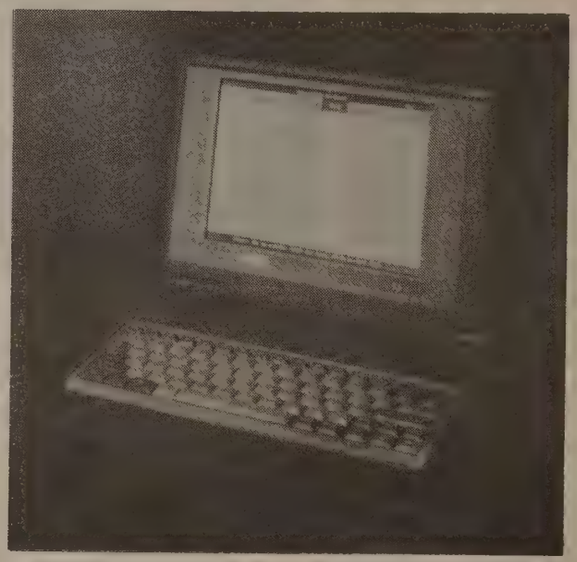
Computer Of The Month

AST PowerExec EL

AST has long been known as a highly innovative computer manufacturer. Its new 5.9 lb. portable again shows why they have earned this reputation. The machine is marked by modularity as well as versatility. The PowerExce EL comes in a several configurations—the entry level model includes 2MB of RAM, upgradable to 20MB, and a 60MB removable hard drive, while various other sizes available. AST has met the competition head-on with a suggested retail price of $1,745 for this basic configuration.

For $2,295 you can get the same machine with 4MB of RAM and a 120MB removable hard drive. This is the model I recommend for anyone who intends to use Windows. In this configuration, PowerExec EL also comes with Windows 3.1 installed and a trackball-like pointing device that fits onto the front of the machine and even looks like it belongs there. I am not crazy about this pointer, but there are both a serial and mouse port on the back that will accommodate a pointing device of your choice.



The PowerExec EL is powered by a 25MHz, 386SL processor and features a crisp 9.5" LCD display providing VGA resolution. If you need color, there are several options. You can connect a VGA monitor through the port on the back of the computer. Consistent with the modularity of this unit, it is also possible to exchange the monochrome LCD for a color display. Both active and passive matrix models are available.

The keyboard on this computer is well designed and offers standalone cursor movement as well as Home, End, PgUp and PgDn keys. The feel of the keyboard is good. Despite the quality of the keyboard, many users might still prefer to use a 101-key keyboard, which can be easily connected.

Modularity is key to the unique design of the PowerExec EL. In addition to the removable hard disk, a PCMCIA slot is provided so you can add a wide variety of accessories, including modems, fax modems, network cards, and SCSI adapters. PCMCIA is the new technology and standard that is really beginning to make an impact. With more and more machines appearing with slots that conform to this new standard, we will increasingly be able to find products that conform to this standard. PCMCIA means that our computers will do more things and last longer before entering obsolescence.

The PowerExec EL includes an AC adapter and NiCd battery pack. Extremely sophisticated power management features make the batteries last up to four hours. You can upgrade to a nickel metal hydride battery ($199) for longer service.

Recognizing that more and more users are choosing a portable computer to fulfill all of their computing needs, AST has introduced the EasyPort ($99), a device that plugs into the back of the EL and replicates its ports. This enables the user to unplug a single device into which all of the peripherals are connected rather than all of the peripherals individually. Many users still feel they need a desktop computer to be able to add boards to their system. AST meets this need with its PowerStation ($449) that offers two 16-bit slots and room for two 5.25" devices. In addition, there is a tape backup included in the unit. The whole thing doubles as a monitor stand.

The documentation that comes with the PowerExec EL is a bit skimpy for my taste, but product support is available through an electronic bulletin board, an 800 number, and a fax service that can provide answers to many commonly asked questions. Should service be necessary, AST provides a one year parts and labor warranty, available in more than 1,200 service centers nationwide.

Users who have shied away from AST because they thought their computers would be out of their price range should take a look at the PowerExec EL. It is terrific. ■

RESOURCES:

PowerExec EL, $1745
AST Research, Inc.
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Irvine, CA 92713-9658
1-800-876-4278

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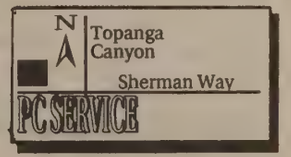

Experiences Of Effective Telecommuting

The Business Community Has Begun To Acknowledge Telecommuting's Advantages And Disadvantages

BY ROBERT MOSKOWITZ

In the last few years, the world of telecommuting has changed from one in which each company felt compelled to do its own pilot study, to one in which companies are more and more comfortable absorbing what others have learned and going forward from there with a more ambitious telecommuting program of their own.

This is a major development; it marks a departure from the syndrome of having just one or two years of experience with telecommuting—but having them many times over. Instead, the business community is giving credence to the many years of telecommuting experience and acknowledging its long-term advantages and disadvantages.

Here is some accumulated experience drawn from three separate sources that may benefit your own telecommuting development: a telecommuting pilot program, a company's telecommuting application form, and a "personal log" kept by an anonymous telecommuter who successfully made the transition from office-bound work.

(Note: these sources all presuppose that telecommuters will work from home when not at the office. However, there are a growing number of telework centers and shared office sites that allow for telecommuting from a nearby office, rather than from home. Many of the same considerations and experiences apply, regardless of where one does the work.)

FROM A JOINT TELECOMMUTING PROGRAM OF AT&T AND THE STATE OF ARIZONA:

During a six month "test" period in the Phoenix area, the 134 telecommuters in this program stayed away from the office an average of one day per week. The telecommuters tended to call their office about 3.5 times per day, and they received an additional 2.5 calls from coworkers at the office. About 88% used some of their telecommuting time to do writing, editing, and other typing. About 85% used some of their telecommuting time to do reading, researching, and planning. More than half did word processing while telecommuting, and almost as many accomplished useful work using nothing more than an ordinary telephone.

About 60% of the telecommuters in this study noticed a marked improvement in their attitude toward their job during the telecommuting test period. Nearly 80% said telecommuting helped them manage their time better, allowed them to work more often at the times of their "peak" capabilities, and favorably impacted how well they met work objectives. More than 90% said they would recommend telecommuting to others, that they faced fewer distractions at home, and that they were able to successfully keep a separation between their work and home responsibilities. After the test period, 97% elected to continue telecommuting the same amount of time or more frequently.

More than three-quarters of these telecommuters' supervisors reported that productivity went up, morale went up, and their areas of responsibility benefited from the telecommuting program, all without any increase in their supervisorial work load.

During the test period, the telecommuters avoided driving approx. 97,000 miles, and thus avoided generating nearly two tons of air pollutants. They also saved more than $10,000 they would normally have spent on commuting costs, and escaped from about 3,600 hours of travel time. It should be noted that the 134 telecommuters in this test program had a mean time of about 35 minutes for commuting one way to or from work. Their average commute was about 15.5 miles, one way.

These numbers are representative of many other pilot studies, and can give you a reasonable basis on which to compute how much you—or employees of your company—would save and benefit by practicing telecommuting just one day a week.

FROM A GTE TELECOMMUTING APPLICATION FORM FOR EMPLOYEES:

In addition to name, position, and other information to locate and identify the employee within the vast GTE organization, the questionnaire asks for such important information as:

- •What appeals to you about telecommuting? What do you expect to gain, and how do you think telecommuting can help you?
- •What concerns do you have about telecommuting? What parts of your job might be hard to perform from another location? What are the potential "problems" from telecommuting?
- •How do you think telecommuting might help you do your job more efficiently?
- •If you have young children or other dependents at home, what arrangements have been made for their care during your working hours?
- •How well do you think you'll be able to manage the potential distractions while working away from your normal/routine work location?

The GTE application form also asks each applicant to rate his or her own work (high, medium, or low) for various aspects of its suitability to the demands of telecommuting, as follows:

- •"Portability" of the job; can you take what you need in a box or access it over the telephone line?
- •Tasks or work materials can be taken out of the office without violating data security policies?
- •Amount of contacts with others that can be done by phone, voice mail, fax, e-mail, or mail (as opposed to in-person)?
- •Ability to "clump" required face-to-face interactions into scheduled times?
- •Job tasks have fairly well defined beginning and end points, for easier measurement?
- •Amount of concentration required over long periods of time to do the job well?

The GTE application form then asks each applicant to rate themselves (high, medium, or low) for various personal characteristics suitable to the demands of telecommuting, as follows:

- •Ability to work without direct supervision?
- •Quality of work planning and organization skills?
- •Ability to work without frequent, direct

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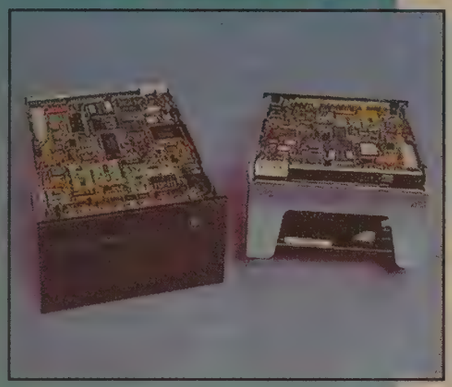

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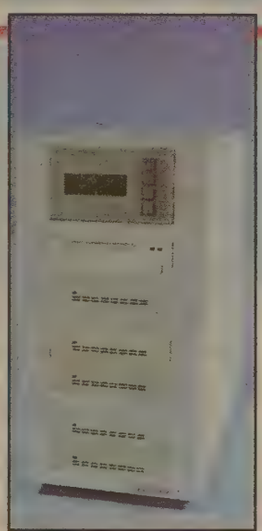

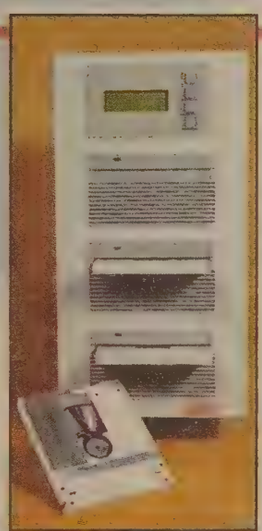

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- •Reliability re: work hours and attendance?
- •Ability to work productively and gain satisfaction without frequent social contact with coworkers?

The GTE application form asks each applicant's supervisor to rate themselves (high, medium, or low) for various personal characteristics suitable to the demands of managing a telecommuting subordinate, as follows:

- •Supportive attitude towards telecommuting?
- •Ability to supervise without direct daily contact?
- •Ability to provide clear direction and set performance goals?
- •Willingness to manage according to work products or results, [rather than] by relying on observations of activity?

The GTE application form also asks each supervisor to rate the applicant's work (high, medium, or low) for various aspects of its suitability to the demands of telecommuting, as follows:

- •How many days per month *can* this job be done away from the office?
- •How many days per month *should* this job be done away from the office? At home? _____ At a GTE satellite location? _____ At another location? _____
- •What equipment and resources does the employee need for telecommuting—and which of these are currently available? PC or terminal? Printer? Modem? Extra phone line(s)? Fax machine? Software? Other?

This form reflects the main concerns that must be addressed in selecting telecommuters with a high likelihood of success. By screening applicants carefully and selecting those that meet basic telecommuting criteria, it's far easier to avoid the problems, disgruntlement, and disruption of work flow that can arise from a poorly planned telecommuting program.

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FROM A PERSONAL LOG KEPT BY AN ANONYMOUS TELECOMMUTER IN NORTHERN CALIFORNIA:

"It took me a long time to learn how to use my modem and printer. I was not familiar with their operation, and I didn't have enough electrical outlets for all the computing equipment I brought home from the office. Later on, I learned the modem was faulty and had to be replaced. Next time, I'll learn in the office how to work all the equipment, then it will be easier to start using it at home.

"One fear I encountered was that at one location or the other I wouldn't have the materials and resources I needed to work. This initially led me to lug boxes and briefcases back and forth between work and home. Eventually, I eliminated much of this lugging through duplication of key paperwork and better separation of my tasks and responsibilities. But even today I occasionally go to my car trunk for certain files.

"Another fear is that I'll miss something going on at the office. At first, I received duplicate memos from various people who were concerned that I might be left out of the loop. When the duplicate memos stopped arriving, I wondered if I was missing anything. Over a long period, however, I learned that I don't miss anything of importance in the office. I catch a sign of it somewhere and can then find out what I need to know. But I sometimes wish for a phone call, with all its human inter-

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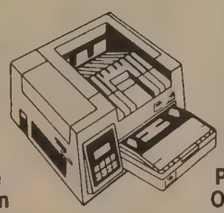

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action, instead of a cryptic, less personal email message.

"My biggest fear was that I'd miss an important phone call from work. I was afraid every time I stepped outside to look at my garden or to drive my daughter to a dentist appointment—even when I went to the bathroom. I felt someone might need me, and also that someone might think I was stepping out on company time. I felt that to justify the trust placed in me I had to stay within reach of the telephone. Some of this tension has disappeared, but I'm far more comfortable now that I have firmly established hours when I'm "on" and when I'm "off." Also, I'm less tied down because I have a cordless telephone and a message machine for the occasional calls I miss.

"Another problem developed when I began putting in twelve- and fourteen-hour days at home. I enjoyed being able to continue working on a task or a project well past the time I would normally have to quit to begin my commute toward home. But then I realized I was snapping at my children when they asked if I was going to help prepare dinner. Some nights I would work late after dinner and next morning have trouble getting to the office by 8:00 am. If I did show up late at the office, I feared that others would think I was getting special treatment because of my telecommuting arrangement. After months of this, I began setting my own limits on my hours of work at home, and keeping deadlines from the office in better perspective with the legitimate demands of my home life.

"An interesting situation arose back at the office, too. I had agreed that others could use my office while I was telecommuting. But then I felt a little dismayed and disoriented when I would come in and find others meeting in my office, or other people's paperwork piles on my desk. As my schedule firmed up, this happened less and less often. But even now, when I show up unscheduled at the office I sometimes have to work in the conference room instead of at my own desk."

It's natural for any organization to be cautious about making a move as significant as supporting people who want to work away from the office. Yet the benefits of telecommuting are so enormous, and the difficulties so well charted and so easily averted, that no one should any longer feel they must start from scratch and reinvent the wheel in this important area of making business organizations more efficient and responsive. ■

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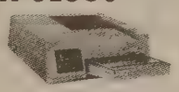

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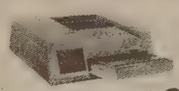

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COMPUEXPO

As Price Wars Force The Hardware Giants Into The Commodity Business, Independent Vendors Find New Ways To Compete.

As more than one observer has remarked lately, the personal computer industry is in a period not unlike the chaotic days when it first got started: new platforms, new capabilities, new potential applications—and no telling which hopeful entrepreneur's company will become the next Compaq and which will be the next Cromemco.

Vendors and customers alike are struggling to make sense of new processors (Intel's Pentium, DEC's Alpha, the latest offerings from MIPS and SPARC, the impending PowerPC, etc.), new platforms (Personal Communicators, PDAs, wireless networks, and so on), new standards (e.g. PCMCIA), and new ways of accessing and handling information (multimedia, client-server databases, and more). OS Wars are creating new quandaries, as Microsoft's NT, Novell's UNIX, IBM's OS/2, Apple/IBM's soon-to-arrive Taligent, along with the recently-ported-to-Intel NeXTstep and Sun Solaris vie for hearts, minds, and installed base. Customers need to invest their purchasing dollars wisely for their current and future needs; vendors need a sense of what buyers want now and what they're going to require later.

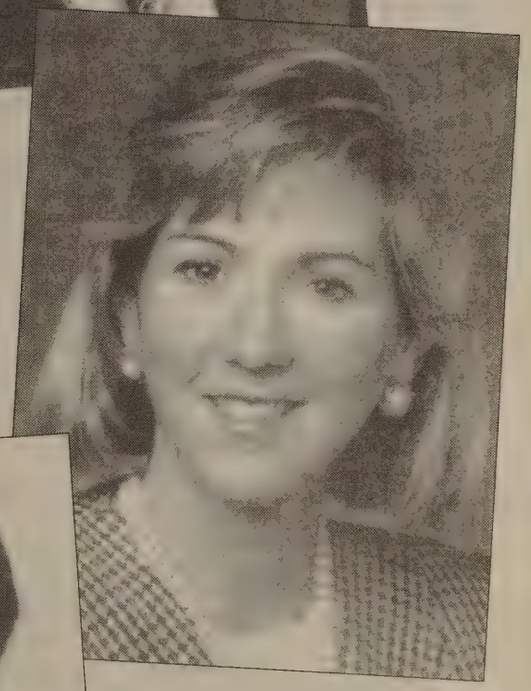
Meanwhile, the industry's infrastructure itself is changing beyond recognition. After years of losing sales to cost-cutting clone vendors, big-name players like Compaq and even the once-mighty IBM have entered the commodity computer market with extremely aggressive pricing, making it virtually impossible for small companies to compete. One reason they're able to do this is that they've abandoned their aversion to Not Invented Here syndrome—as product cycles become shorter and shorter (today's state-of-the-art is obsolete in 90 days), even the giants look to outside sources and collaborative relationships for the innovative technologies that help them compete.

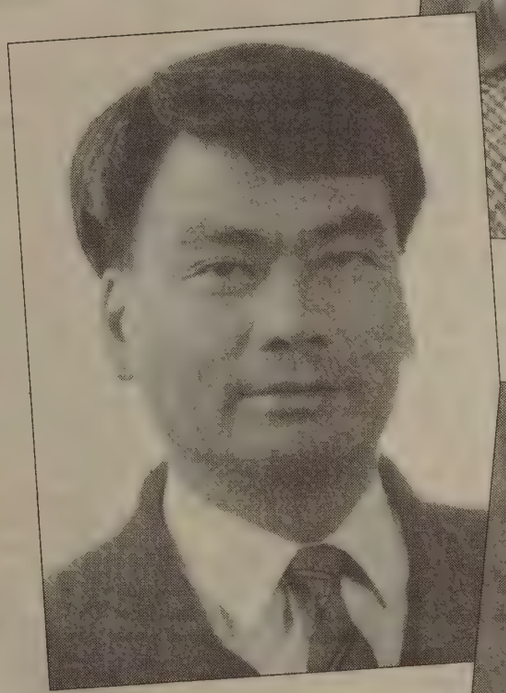
Consequently, many small companies are moving from the low-cost box-moving business to a value-added approach in order to differentiate themselves from their competition. Says Allen Yu, a successful entrepreneur and OEM, and CEO of UNSC Investment Group, which produces COMPUEXPO: "The large guys tried to take the market back and dominate this market again, and hurt some of the second- and third-tier manufactur-

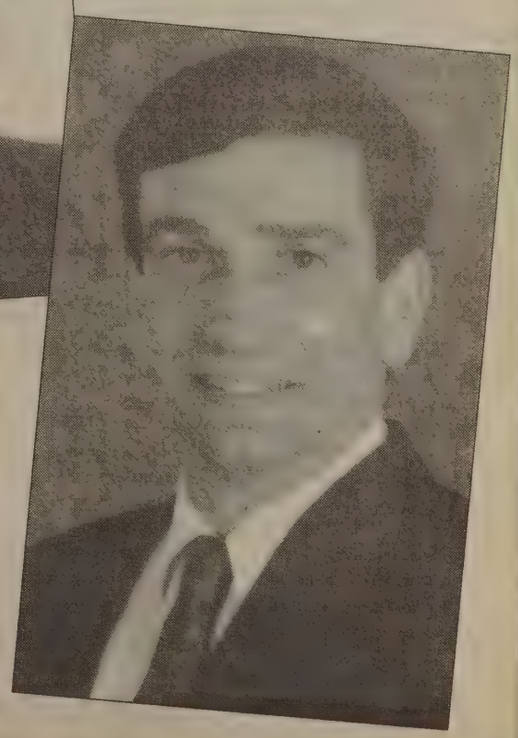
(l-r): UNSC's Susan Cooney, Allen Yu, Jessica Lo, and Leap Frog Marketing's Joe Bentzel

'93 Resources For An Industry Living In Interesting Times

By Mary Eisenhart







(top-bottom): Donald Weng, Chairman, THCA; Jill Kerr, Vice President of Sales and Marketing, The ASCII Group, Inc.; Jackson Lan, President, SCCCA; Alan Weinberger, Chairman of the Board, The ASCII Group, Inc.

ers. Even though the large players in the market dominate the industry again, they're still missing a lot of points.

"In this industry there are a lot of entrepreneurs, many with an engineering background. Most companies with engineering backgrounds are using existing PC hardware platforms to switch to communications products, imaging and multimedia products, telecommunications products, and remote networking. Based on their background, they have the capability to do that, to switch the company to a more technical and more specialized orientation, to try to define a vertical market to get away from the price wars." And often, their customers include the IBMs, the Compaqs, and the other large companies they used to compete with.

Clearly it's a time when yesterday's strategies won't work, and new plans and alliances are called for. Entrepreneurs, vendors, and customers need to define new ways to create mutually beneficial relationships.

COMPUEXPO

Resources For Relationship Building

Enabling mutually beneficial relationships is the whole reason for COMPUEXPO, a different kind of trade show that debuted last year in Las Vegas (see "Clones: The Next Ten Years," Issue #93). The guiding principle for the show's existence is the belief that in contrast to the first ten years of the PC industry, in which a few large companies set the standards and dominated the marketplace, the next decade will be characterized by far greater diversity, global partnerships among specialized smaller players, and value-added marketing in an intensely price-competitive environment.

With Windows NT waiting in the wings, Novell announcing aggressive strategies for its newly-acquired-from-AT&T UNIX, and a host of new processors challenging Intel's long-established dominance, it's clear that defaulting to "IBM compatibility"—or even Intel or Microsoft compatibility—as the universal solution is about to become a thing of the past.

COMPUEXPO '93 is working to help its constituen-

continued on page 55

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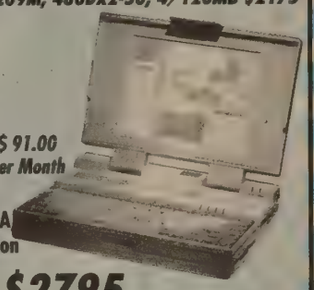

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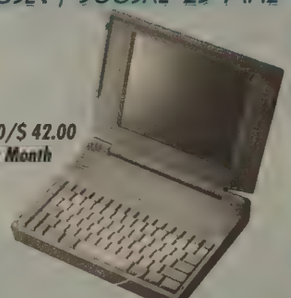

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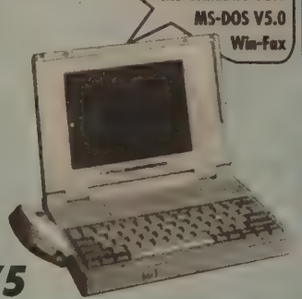

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Lost In The Makuhari Messe

BMUG Goes To Tokyo

BY DAVID MORGENSTERN

BMUG

What an experience I had in February—helping out in the BMUG booth at the Tokyo Macworld Exposition. We met many of our Japanese BMUG members and spoke with thousands of excited Macintosh users. It was a real privilege to rub shoulders with our exceptional volunteers and hear firsthand what's happening in the Land of the Rising Mac.

There was no difficulty in recognizing the BMUG delegation. Could there be more than one bunch of tie-dyed t-shirt-sporting nerdy *gaijin*, analyzing every high-tech advertisement on trains, or the back of magazines being read by innocent subway-riding bystanders, or on the gigantic television displays covering the sides of buildings? Not in Japan.

The restaurant scene was very Berkeley, as well. Our poor translator, Tom Gardner, was pushed to the edge of sainthood trying to find menu items for some strict vegetarians, non-fish eating carnivores, and no-red-meat-or-fish-but-everything-else-whatever-that-is-itarians. I am well trained to eat everything and anything that is placed before me—and enjoy it! Yes, I will have some more salted, fermented sea-something-or-other. Yummy.

MAC-UHARI MACWORLD

The Tokyo Macworld Expo is actually held in a suburban hall twenty-five minutes outside of Tokyo proper, called Makuhari Messe. Macintosh users from all over the country came to see the latest and greatest. Although the show management claimed that the Tokyo Expo is the biggest, with almost one hundred thousand attendees, there were fewer vendors, developers and products than were at the San Francisco Expo.

The Expo featured games, computer music hardware and software add-ons, and graphics-related products. There were many KanjiTalk ports of American favorites, as well as home-grown flavors of software, hard drives and graphic cards—many looking for US distributors.

The high price of software was the biggest complaint voiced in the BMUG booth—so what's new? This is the complaint heard at every computer show around the world. This criticism was not aimed at our BMUG prices, which were the same as at the American Expo, but about the general price levels in Japan. They've grown accustomed to US companies shipping over products with 200% price increases, and then not supporting their foreign users. It's beginning to look as if American companies with J-localized versions are starting to support them as they should.

Here are a couple of products I found the most interesting:

•I appreciated the work that FontLand is doing with TrueType and Unicode, the international standard for the two-byte character set. FontLand has put together a database of all 50,000 Kanji. Each Kanji character is written as it appears in Japanese, Korean, and the two Chinese groups. The database gives the character codes for each of the languages' current ISO 8-bit character sets, the pronunciations, and the brush stroke numbers for each character. They've done the TrueType fonts for the current language sets, and have created a bitmap for all 50,000 characters in the full Unicode specification. FontLand said it would take another six months to complete TrueType conversion of the rest of the characters.

•I was blown away by all the interesting CD-ROM-based picture books. I call them coffee table CDs, and there were many varieties, including sepia nude photographs, fantasy "adventure" tours, and Gothic sight 'n sound experiences.

Cellofania by Tonkinhouse is a young children's picture book on the computer. All the objects in a particular picture can be clicked on and perform some action. There's no spoken dialogue on the disk, but rather digitally recorded music composed especially for the project. Kazu Ichigaya, New Product Planner at Tokyo Shoseki Co. says, "It's for fun. It creates small talk and a sharing experience between children and their parents." The company said that Cellofania would be available in the US soon.

The REFIXION series of CD-ROM titles are

There was a definite translation gap in some of the names given to products. The BUG Company from Sapporo has a Pickles series of display cards and monitors. Would you have confidence in a computer company named for software glitches? But it's a big company in Japan.

Copyright © 1993 by David Morgenstern. All rights reserved. *David Morgenstern believes that computers and BMUG can cultivate a positive change in the world. He volunteers time at BMUG, when he's not working his "regular job," writing, or prowling around the BMUG Bulletin Board. He can be reached through the BMUG office, AOL: daviD eM, CIS: 72030,1607, and Internet: davidm@sfsuvax1.sfsu.edu.*

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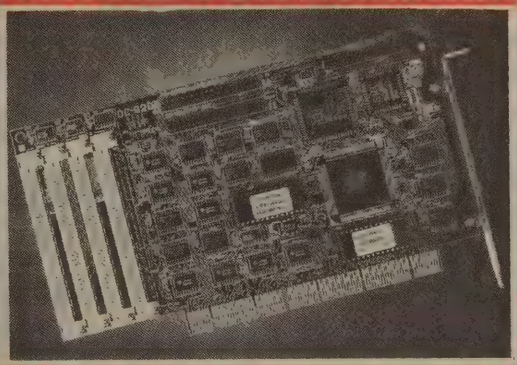

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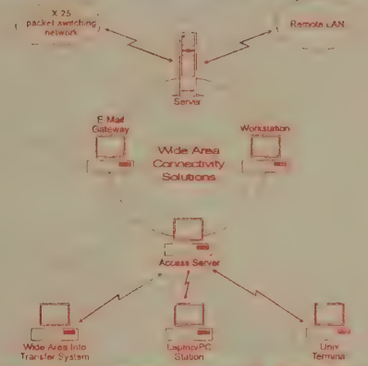

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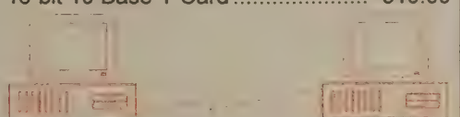

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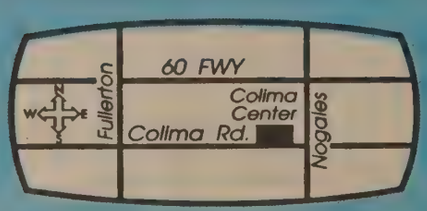

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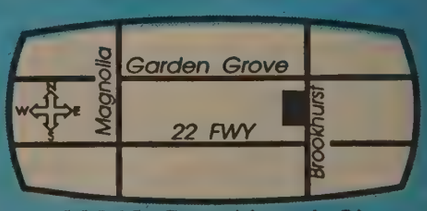

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part of this new trend in publishing. These are non-narrative (or not strongly narrative) multimedia experiences. REFIXION I is a collection of short stories: "The Anthrax Robot Works," "The Anthrax Robot Works (Funny Fish Mix)," and "Shangri-La." They each have a different visual and artistic sense, with music composed for the pieces.

I played with the second volume in the series, *Museum or Hospital.* It's a series of moody macabre visions, set in the edifice of your choice. Many of these new CD-ROM fantasies are set in identifiable places. *Gadget: Invention, Travel, and Adventure* by Toshiba EMI was heavy on the gadgets, inventions, and train station-motif picture-postcard locals, but adventure? The latest installment of the Indiana Jones saga it is not.

•The best program of the Expo was Cracker Software's Aquazone, a tropical fish aquarium simulation. The simulation had an incredible depth, giving users the ability to make the same mistakes they would make setting up a real aquarium, but without sacrificing real fish.

The program contains an overwhelming amount of information about the behavior of fish, how water effects them, the different chemical and bacterial composition of the water, and their health.

The fish have individual identities; then they breed, have kids, and the kids all have their own identities, based on coded "genetic" information. They're all separate fish, with their own attributes which are passed on through genetic information to their offspring. The developers promised me that they would actually look at some real Macintosh programs before starting work on the US version—Aquazone was their first Mac program.

•There was a definite translation gap in some of the names given to products. The BUG Company from Sapporo has a Pickles series of display cards and monitors. Would you have confidence in a computer company named for software glitches? But it's a big company in Japan.

Pickles in Japan (which are really great and colorful) do not have the cheap, sour, and green American connotations. But "Pickles" doesn't sit right in my desktop vocabulary.

The Grand Vimage 24-bit accelerated graphics card from Interware has an odd name too. A *vimère*, which is the only "vim" beginning word in my French dictionary, means damage or insult. Perhaps they meant visage, a French word for face or aspect.

For some in Japan the Macintosh is a lifestyle. *MacLife*, a popular magazine, had a booth near BMUG's. Mainichi Communications had a new "Mac Infotainment" magazine, *Mac Fan*, with grimacing face-painted wrestlers on the cover. I found myself hard pressed to answer the semi-existential question posed by one vendor: How are you and your Mac today? I was guilty—I had forgotten to speak to my Mac when I phoned home the day before!

•I picked up a copy of the cassette version of the Karakkaze Mac Users Group (KMUG) song. As far as I know, no user group anywhere else in the world has a song—I was very impressed! I passed on the Microsoft logo handtowels, and bought some handkerchiefs printed with the Tokyo transit system for myself—in preparation for my next visit.

THE FIRST IMPRESSIONS: EXPO AND TOKYO

The Western visitor to the Tokyo Macworld Exposition is confronted by the falsity of appearances. On the surface, everything seems to conform to a run-of-the-mill computer show, but quickly the contradictions begin to surface. The Expo is perhaps a microcosm of Japanese society, where rules and expectations are often contrary to Western thoughts, values, and ways of conducting business. Here are a few things that caught the eye of a first-time visitor:

•Even before the Expo started, things were already different. We were amazed by the army of construction workers building the booths in the hall, hammering nails in plywood, and hanging wallpaper on the spot. I watched in fascination as a river of paste oozed toward a dozen color Macintosh and monitors resting on the floor. The booths resulting from all that work were elegant and beautiful. There was a rumor that the Apple booth cost ¥10,000,000 ($80,000)! I thought of the Titanic sinking in the ocean as we watched it being torn down.

•On the first day of set-up, we walked the length of the Convention Center to try and find a way onto the Expo floor to see our booth. We asked a guard if any of the doors were open. He replied that he couldn't tell us which one was open for security reasons—but if we tried each one going down the hallway, we might find one that was open. He was correct. Three Quadras and one Color PowerBook (there were only four in the country at the time) had been stolen by the end of the first day of the Expo.

•I've heard that detailed street maps are not very helpful in Japan, as they are in America. Addresses are given by district, area, or neighborhood, rather than entirely by street. The booth numbering system of the Expo offered similar challenges for the attendees.

There were no numbered "street," or row signs floating above the aisles of the show as we have at American shows, and no booth displayed its given number. Although the Expo guidebook had a map with the numbers, and the primary alphabetic listing of the companies included the booth numbers, it was difficult to figure out where you were on the floor. Directions were usually given with references to the nearest unique booth, or tempura udon vendor.

•The booths provided another opportunity for culture shock. Everyone in the hall wore plain plastic badges, identifying their

What Is BMUG?

BMUG is an educational nonprofit consumer advocacy group organized to share information, and provide critical direction to users and developers in the computer community worldwide. It is an independent advocate, not affiliated with any manufacturer, delivering trustworthy information and useful products.

Like any growing organization, it is many different things to its 14,000 international members. BMUG supports many Special Interest Groups (SIGs), an eight-line Bulletin Board System (BBS), free HelpLine, software library, weekly meetings, publications, and much more. BMUG also puts out a semi-annual 350+ page book that we call our "newsletter."

Our motto continues to be: *We're in the business of giving away information.*

Come and join in the dialogue at the BMUG main meeting every Thursday evening, 6:30-9:30 (or whenever we finish), in the Physical Sciences Lecture Hall on the UC campus. BMUG West and BMUG South are monthly meetings held in San Francisco and San Jose.

The BMUG Office, 2055 Center Street (a half block from the BART Station) is open to the public 9 am to 5 pm. Please come by and say hello, meet other members, and hang out.

The BMUG HelpLine, (510)540-1742, and our fax number, (510)849-9026, provide technical assistance and telephonic hand-holding during business hours (11 am–5 pm). If your question can't be answered on the spot, we try get you in touch with someone that can help. Of course, not every problem can have a happy ending—but we try.

BMUG has one of the most up-to-date, comprehensive software libraries around with hundreds of disks filled with the latest versions of public domain or shareware programs, and HyperCard stacks. New disks are unveiled almost every week at the Thursday general meeting. BMUG also brings you the *TV-ROM*™, a fantastic collection of public domain QuickTime videos.

Our new graphic user interface FirstClass 18-line BBS offers many of the latest versions of files in our software library as well as news, private mail, rumors, etc. With our multi-line capability, you can have access to BMUG almost 24 hours a day. It's easy to use, fun, and a great resource.

BMUG can be found on most electronic services. BMUG can also be reached through the Internet international network through UG0001@applelink.apple.com.

To get some further information about BMUG please write to: BMUG, 1442A Walnut St., #62, Berkeley, CA 94709. If you prefer to phone our business office call (510)549-BMUG, or fax (510)849-9026.

"class" as attendees or exhibitors, but not their name, or position in the company. All contact is done on a one-to-one basis, with only the ritualistic carefully offered exchange of business cards giving any clues as to with whom you've been talking—and whether they really know what they're talking about.

•The concept of noise pollution has not reached Japanese shores. Our Tokyo Sunday mornings were punctuated with political speech-making that could be clearly heard from a mile away. The shopping districts are a cacophony of human, automobile, and train noise, accompanied by ear-splitting music and sound from multi-story video advertisements on the sides of buildings or billboards.

The sound level from many booths in the Tokyo Expo would be unacceptable in a United States Expo, or perhaps in a factory governed by Environmental Protection Agency regulations. The Fujix booth had its own disk jockey, playing an uninspired rock and roll tune every seven minutes, numbing show personnel for aisles around. Unfortunately, the WordPerfect tap dancing show had to boost their sound levels to compensate, setting off a major and minor sound competition.

Upcoming Events:

April 1	Bering, Disk Café (hard drive utility); Bimillenium Corp., HiQ (numerical analysis).
April 8	Mark Mullen, Virtual Reality on the Mac; Fifth Generation Systems, Utility programs.
April 15	Objective Software, SpreadBase (business modeling); Macworld CD Ventures, Interactive CD-ROM products.
April 19	BMUG South at United Way Office in San Jose. SuperMac, Digital Film (desktop video); Insignia Solutions, Soft PC and Access PC.
April 22	Maxa, FileGuard and WindoWatch (security utilities).
April 23-25	Apple Expo West at Brooks Hall in San Francisco. Say hello at the BMUG booth.
April 26	BMUG West at Exploratorium museum in San Francisco. Software Tutor, Flexware (accounting package); SF Video, NuTech ToasterLink (Toaster file exchange).
April 29	Mobius, Speedster (040 accelerator); Symantec, SAM, Norton Utilities and Norton Essential for PowerBook.

Call the BMUG Announcement Line for the latest information on BMUG meetings, Special Interest Groups (SIGs), and Seminars! 510-849-9114.

BYTES AND PIECES

•Beware that a couple of new viruses are on the loose. One is a new version of the CDEF virus, discovered in New York. The other is a new strain of the T4 virus, called T4-C. These criminal programs can cause grief to your files and system. The T4 virus attempts to modify the system boot code, applications, and system file itself, which might render some systems unbootable. You don't want them on your hard drive.

Version 3.0 of Disinfectant (available on the BMUG Utility V1 disk) will combat these virus strains. Disinfectant is a freeware antiviral application and guardian program, that will watch out for virus infections. Unfortunately, the previous version of the Disinfectant protection extension didn't pick up the new flavor of the CDEV virus, although the application caught it. This problem and some other small bugs have been fixed in this release.

•If you've left your taxes to the last minute, or just filed the extension, you might be interested in the new book by Scott Beamer, BMUG's business guru. *MacInTax Made Easy* will assist you in using ChipSoft's famous tax preparation software. Scott points out areas where users should be extra careful, or where they might assume something they shouldn't. It's published by Osborne McGraw-Hill and is available in your local bookstore for $19.95. ■

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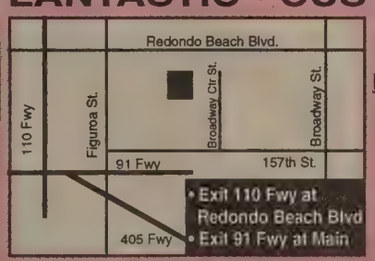

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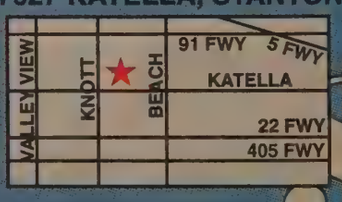

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continued from page 20

For the first time—at little or no cost—citizens, community groups, activist organizations, unions, newspaper reporters, editorial writers, cities, towns, counties, schools, and all other individuals and groups could know most of what is happening in the Legislature almost as fast as onsite lobbyists.

continued from page 20

Laurence Tribe. He is widely reputed as perhaps the leading constitutional scholar in the nation. His texts are standards for law school courses in Con Law. He is so highly reputed that he has even served as a consultant to some of the new nations formed from the old Soviet Union as they draft their national constitutions.

In March, 1991—for the first time in his professional career as a constitutional scholar —Professor Tribe felt an issue was so important that he proposed an Amendment to the US Constitution:

"The Constitution's protections for the freedoms of speech, press, petition, and assembly, and its protections against unreasonable searches and seizures and the deprivation of life, liberty, or property without due process of law, shall be construed as fully applicable without regard to the technological method or medium through which information content is generated, shared, altered, transmitted or controlled."

We are in the midst of changing from the Industrial Age into the Information Age. We have a President who *seems* to realize some of the implications of that change. We need at least *one* Supreme Court Justice who has *proven* a knowledge of and concern for the impacts of technology on constitutional guarantees.

Those who care could (promptly) address their comments *re* Supreme Court nominees and their qualifications to: President Bill Clinton, The White House, 1600 Pennsylvania Ave., Washington, DC 20500; fax (202)456-2461; voice (202)456-1111. (The main White House switchboard is 202/456-1414.)

THE HORSE'S MOUTH

I often speak on technology, government, freedom, and privacy, and also about personal computing's history and futures. On April 27th, the Electronic Frontier Foundation's Washington counsel, Shari Steele, and I will present a half-day seminar for the High Tech Criminal Investigators Association (HTCIA). On May 27th, I'll join Terry Winograd and Denny Brown in discussing "The Future of Computing and Its Impacts on Society" before Silicon Valley's Churchill Club. June 18th, I'll be the banquet speaker for the Ohio Libertarian State Convention. ■

Warren founded InfoWorld, Wireless Digital, Initiative, Inc., and one of the nation's largest public microcomputer conventions. He was founding host of PBS's Computer Chronicles, *founding editor of Dr. Dobb's Journal, and has chaired various trade and professionals' organizations. He holds graduate degrees in computing (Stanford), medical information science (UC Medical Center), and mathematics & statistics. He has been a computer professional since 1968, and was a mathematics teacher and professor for ten years before that.*

He organized and chaired the landmark First Conference on Computers, Freedom & Privacy (1991), sponsored by a dozen nonprofit civic, professional, and industry organizations, and received one of the first Electronic Frontier Foundation Pioneer Awards (1992). He is a member of the board of directors of Autodesk, Inc., and also chairs the Communications Committee of the California Public Records Act Reform Coalition.

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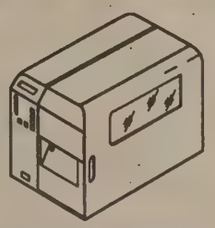

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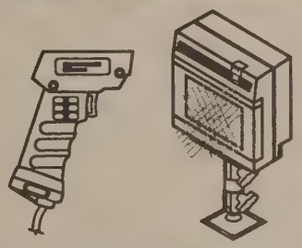

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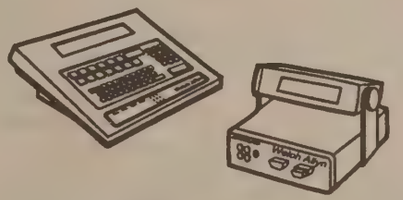

Welch Allyn bar code readers/scanners. Over 15 years leadership in bar code manufacturing.

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distance. One minor gripe: The contrast control dial is located in a particularly easy-to-reach place, so I've often accidentally hit that dial without noticing it; the screen goes blank, so I think the machine is off when it isn't. Hitting the "on" button, of course, does no good, since the unit is already on. I went though a few moments of panic the first time this happened before realizing that the screen was blanked out due to the contrast control.

The searching functions are generally powerful and convenient. Different searching techniques range from searching only in the current mode to searching all modes for a given data item. You can easily search for a given string in the Memo pad, for example, just by typing the string and hitting one of the search keys. This is similar to the Wizard design. However, in addition, you can do global searches, and the "search" key is more easy to use and obvious than on the Wizard.

The spreadsheet comes with a number of "templates," or pre-built spreadsheets, designed to do a variety of common computational tasks for you. These include such useful items as an amortization template, a house payment estimator, and a checkbook template, among others. The templates are described in brief in the on-line help, or at greater length in the manual.

Because the SF-R20 is an organizer and contains programs specifically designed for low RAM usage, the 256K is used more effectively than in units such as the HP 95LX or the Psion Organizer 3. Only 56K or so is used by the machine as "overhead" while the unit is in operation; this leaves a full 200K of the 256K available for the storage of spreadsheets, telephone book entries, memos, and other information. Even though the unit includes a spreadsheet, normally a memory-hungry application, it uses only the 56K "overhead" memory, leaving the 200K RAM storage area for user data and spreadsheets. For example, rather than "loading" the spreadsheet into working RAM, the machine can simply work on the spreadsheet "in place"; this reduces the need for extra RAM as well, since a separate "RAM disk" and working RAM area need not exist (resulting in needless duplication of RAM usage). This points out one of the advantages that specially built organizers have over DOS-compatible palmtops.

There are some problems with this machine. One weakness of the B.O.S.S. series as a whole, the SF-R20 included, is the relative dearth of software cards. The Sharp Wizard has a large variety of cards available; the B.O.S.S., by contrast, has comparatively few. What I particularly miss is a terminal emulator program; I've sometimes been on vacation and used my little Wizard as a portable terminal to check up on my email without having to drag around a full-blown laptop. Not only does the B.O.S.S. fail to include a built-in terminal program, there is none available on an optional IC card. (There exists, however, an optional PC or Mac link cable and software—which I think should be bundled with organizers these days, as they are absolutely necessary—which go for about $100 each, and allow data to be transferred to and from a PC.)

The Lucid spreadsheet will convert Lotus 1-2-3 spreadsheets (up to 32K) into its internal format. This makes the SF-R20 not only a full-function organizer but also a powerful general-purpose financial calculator.

Another feature I'd liked to have seen is some sort of macro feature; the Wizards have a "user dictionary" that allows you to put in commonly used keystrokes. Though the spreadsheet function has macro capabilities, the machine as a whole does not (as far as I can tell).

However, these problems are relatively minor (unless you happen to require one of the missing capabilities, such as terminal emulation). If you're looking for a powerful general-purpose palmtop with spreadsheet functionality, the SF-R20 is an inexpensive and versatile tool. Much cheaper than the HP 95LX or similar machines, it nevertheless approaches its usefulness and power, and aside from its lack of a good built-in terminal program, it has all the features you would want in a good portable personal information manager.

THE CASIO/TANDY ZOOMER

The hot news in the palmtop industry these days is the announcement of the Casio/Tandy collaboration on a pen-based palmtop machine code named the Zoomer. The technology is apparently positioned to compete with the Apple Newton, providing pen-based palmtop functionality using a GeoWorks-based operating system.

In addition, Palm Computing, America Online, and Intuit have also joined the team to provide software and connectivity solutions. Palm Computing develops palmtop-based application software; America Online provides online services to consumers, and Intuit is the maker of the popular Quicken personal financial software package. Unfortunately, few details were available about the machine at the announcement; no information about projected price point, specifications, or even size and weight were available at press time. However, the promotional photograph makes the unit look roughly the size and shape of the handheld version of the Apple Newton, clearly establishing the Zoomer's target competitor.

POQET RISES AGAIN

Remember the old Poqet (pronounced "pocket") PC? No?

Well, the Poqet PC was one of the first DOS-compatible palmtops on the market; it made a big splash when it was first introduced, but had difficulty gaining market acceptance due to its lack of built-in functionality and its reputation for being difficult to use. Fujitsu Personal Systems bought Poqet, and renamed it Fujitsu Personal Systems. Fujitsu recently introduced two new machines: the PoqetPad Plus and the Poqet PC Plus.

The PoqetPad Plus is a handheld, full-sized screen, pen-based DOS-compatible palmtop

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(415)949-9560

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New Media Corporation
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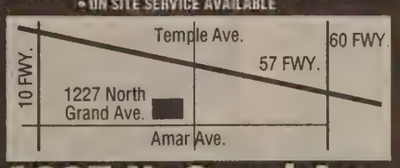

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that features an 8086 compatible V30 processor operating at 16MHz, 2MB of RAM, and two PCMCIA slots (a type I/II slot and a type I/II/III slot). The unit weighs in at 1.6lbs., measures 10" x 4.6" x 1.5", and will operate three to twelve hours on a rechargeable NiCad battery pack. The long battery life and light weight are due to an advanced power management technology developed by Fujitsu Personal Systems. The machine also comes with an RS-323C infrared link, an RS-232 serial port, TTL serial (for bar code wand support), and a keyboard port. The target retail price is $1550.

The Poqet PC Plus also weighs 1.5lbs., measures 9.1" x 5.1" x 1.4", and also operates for three to twelve hours on a charged NiCad battery pack. The unit includes a keyboard, and has two PCMCIA slots (both type I/II). The machine is priced at $1120 retail.

A DIFFERENT KIND OF PCMCIA MODEM

New Media Corporation has announced a PCMCIA fax modem with two twists: one, it's compatible with the HP 95LX (which has only a PCMCIA 1.0 slot, and thus is not compatible with most of the recent rash of PCMCIA 2.0 fax modems that have been announced), but it also comes bundled with software. For a list price of $259 the PalmModem 2400 comes with a terminal emulation program as well as fax software. This makes it considerably easier to just plug and play: rather than requiring the user to download floppy-disk based software, the software is bundled in ROM on the card itself. In addition, for an additional $80, the personal information manager ACT! is bundled as well (also on the card), adding address book, scheduling, word processing, and report generation capabilities.

MAGNETO-OPTICAL DRIVE FOR YOUR PALMTOP?

Trantor Systems, Limited, has announced a remarkable PCMCIA-to-SCSI adapter which will allow PCMCIA-based palmtops and laptops to connect easily to SCSI devices. The SlimSCSI is a high-performance 16-bit SCSI adapter that plugs into your PCMCIA Type II slot, and allows access to magneto-optical, Floptical, SyQuest, Bernoulli, external hard disk drives, CD-ROMs, HP ScanJet scanners, and SCSI tape drives right from your palmtop (using Trantor's provided SCSI application software). The interface provides up to 2MB/second data transfer rates, which is comparable to many PC-based ISA SCSI adapters. This dramatically increases the general connectivity capabilities of a palmtop; on the road, you can use the internal RAM, and when you bring it home, you can hook it to an external SCSI hard disk or tape drive.

AND MORE PCMCIA NEWS

Data I/O has announced the PC Card Drive, a parallel port-based PCMCIA card drive that allows PCs to read PCMCIA memory cards as though they were hard disks attached to the computer. The CardPro will use the Microsoft Flash File System 2 as its standard filesystem for storing information on the card, and the drive will support both PCMCIA Type I and Type II memory cards. The suggested retail price will be $450. ■

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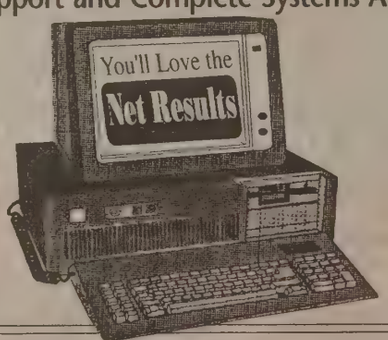

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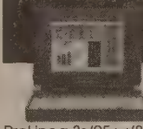

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continued from page 39

cy of OEMs, entrepreneurs, and resellers deal with drastic change in the industry and take advantage of the opportunities it presents, from multiprocessor file servers to multimedia software applications.

Says Yu: "Windows NT supports different processors. It can be used with all the Windows software on the market, and on the mainframe. It changes everything—'Intel Inside' can't be workable anymore. They might dominate some percentage of the market, but it's not the whole thing."

And if Windows NT supports multiple processors, so does UNIX. Consequently, this year's exhibitors reflect a diversity unheard of for previous trade shows, with hardware based on MIPS and SPARC chips and UNIX-based software applications, as well as the ever-popular standards from Microsoft, Intel, and IBM.

Scheduled for September 9–11 in Las Vegas, this year's COMPUEXPO brings together a wide variety of resource providers to facilitate beneficial partnerships in a competitive, changing market. Technical innovation is crucial, but the innovator needs manufacturing resources to get the idea from prototype to product. Not to mention marketing resources to make potential customers aware of the product, and distribution resources to get it into the stores. Then there's also the necessary reality check: not all great ideas are useful enough to be viable in the marketplace.

ALLEN YU:

"A lot of entrepreneurs are switching their companies to a more technical and more specialized orientation, to try to define a vertical market to get away from the price wars."

Says Joe Bentzel of LeapFrog Marketing, COMPUEXPO's publicist: "The reassertion of dominance by the big box-movers, the commodity companies, is forcing the entrepreneurs to differentiate by adding more value, through technical innovation and through service. The role of COMPUEXPO follows directly from those changes in the industry.

"COMPUEXPO is about two things—number one, providing a direct bridge, a technology source. The small guys want to have direct relationships with manufacturers in order to have the leading edge products and the most aggressive prices. So COMPUEXPO brings together the leading edge of the resellers and the system integrators with these direct sources of PC technology, as we call them, PC technology providers. That's the technology source part.

"The other part is to provide the exhibitors and the attendees, that is the resellers, with a marketing edge, in the form of value-added seminars and information, that can allow them to understand these trends, these changes, and compete more effectively in their local and regional market by emphasizing the strengths that they really have.

"End-users still want the best value for their PC. We're dealing with an increasingly educated end-user, who sees the issue as not just performance, or even price/performance, but value in the overall offering: the service, the strength of the company, and the other intangibles and tangibles that make that business partnership work."

Instead of emphasizing an endless round of product announcements, parties, and press conferences, COMPUEXPO fosters networking, information gathering, and deal-making on a global scale. As is appropriate to this mission, the event is very much a team effort, with an extensive list of cosponsors drawn from all segments of the industry: The ASCII Group, Inc., the largest group of independent computer resellers in the US and Canada, accounting for $3.2 billion in sales annually, will be having its annual meeting in conjunction with COMPUEXPO; the Taipei Hsien (THCA) and Taipei (TCA) Computer Associations, which together represent over forty-five hundred Taiwanese computer companies, provide manufacturing resources, technological innovation, and business partnerships. Another cosponsor is the National Business Information Association (NBI), a US-based manufacturer and reseller organization with two hundred supporting members; the Southern California Chinese Computer Association (SCCCA), and Computer Association of North America are large reseller organizations and also among the cosponsors. Additionally, sponsors among the trade press include The ASM Group (publisher of *Computer Sources, European Computer Sources,* and *Asian Sources Computer Products*), InfoWorld Publishing Company, and *Computer Technology Review*—not to mention *MicroTimes.*

Focused Information

In addition to hundreds of exhibitor booths, COMPUEXPO '93 will also feature specialized pavilions, offering entrepreneurs, vendors, and buyers information about key trends in the industry as they affect customers' needs—as COMPUEXPO Marketing and Public Relations Manager Susan Cooney puts it: "These are the products that people are going to be looking for—be aware. Get prepared for it, get involved."

Each showcasing the wares of dozens of exhibitors, the Chinese Software Application Pavilion, the THCA Pavilion, and the China Pavilion will provide information about overseas opportunities for products and business partnerships. A Pen Computing Pavilion will focus on handwriting-based products, a market that's expected to have explosive growth in 1994, and a series of related educational conferences will provide analysis of the technology, its applications, and potential user base.

Addressing a crucial trend is the Energy Efficient

continued

The Energy Star Program

According to a bulletin of the Environmental Protection Agency, "Computers are the fastest-growing electricity load in the business world. They are believed to account for 5% of commercial electricity consumption—and if action is not taken, this could rise to 10% by the year 2000. Ironically, much of this electricity is wasted: research shows that the vast majority of time personal computers are on, they are not actively in use—and 30–40% are left running at night and on weekends."

Aside from contributing to whopping utility bills (both from the power consumption of the computers themselves and the additional costs of the air conditioning often required to counteract the heat they generate), this inefficiency has more far-reaching consequences: according to the same EPA bulletin, generating electricity accounts for 35% of US emissions of carbon dioxide, contributing to the greenhouse effect, not to mention 75% of sulfur dioxide and 38% of nitrogen emissions, a significant cause of acid rain.

energy
EPA POLLUTION PREVENTER

In an effort to create a pollution-reducing and money-saving alternative, the EPA has joined forces with many industry leaders to create the Energy Star program. Beginning in June of this year, member companies will offer computers and/or monitors that power down to 30 watts or less while not in use, thereby saving up to half of a computer's current energy consumption.

Already a number of electric utility companies have committed to the purchase of Energy Star equipment and encourage their customers to do likewise. Also, the federal government, which has agreed to reduce its energy consumption by the year 2000, has expressed strong interest in the program.

Based on present-day rates of consumption, the EPA says, "Energy Star Computers could save enough electricity each year to power Vermont and New Hampshire, cut electricity bills by $1 billion, and reduce CO_2 pollution equivalent to emissions from 2.5 million autos."

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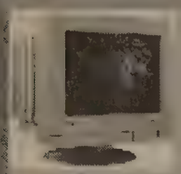

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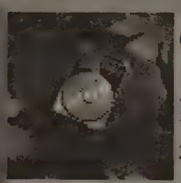

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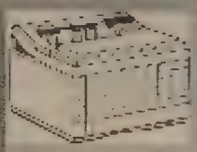

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ML-520, 24pin, 450cps	375
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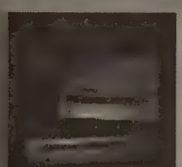

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Computer Technology Pavilion, a response to the Environmental Protection Agency's Energy Star program (see sidebar), featuring products that comply with the new EPA standards.

Says Yu: "The Fortune 200 companies often have more than ten thousand or twenty thousand PCs at a single site. If we can save 50% of the power of each PC, that's probably $100 for each PC a year; if you have twenty thousand, you can save $2 million per year in utility bills. Also you can save money on air conditioning to cool the building.

"Starting this June, a lot of computers will have power management built into the computer or the monitors, using the Energy Star logo. The state and federal governments and larger corporations will support this."

Adds Cooney: "It's a specific example of educating the buyers that are out there. Corporate buyers are going to be looking for energy-saving products in the '90s. They're going to be sourcing manufacturers who can provide this kind of equipment; other guys will be left in the dust."

Year-Round Team-Building

Given its mission of fostering alliances between a variety of independent players, COMPUEXPO has developed an additional service of offering a series of year-round free seminars to potential exhibitors and attendees, to allow them to make the best use of their time at the actual trade show. Subjects include the sort of industry-trend and marketing information that large corporations routinely pay for, which is usually beyond the reach of small vendors.

Explains Bentzel: "We're an all-year-round partnership-building enterprise. That's our mission, to build that bridge and to do that on an all-year-round basis. So unlike COMDEX, which allows a telemarketing person to call you once a year and ask you, "Do you want to renew your booth?", we're out there partnering with the leading trade publications and industry experts to bring information on technology trends, the reseller channel, the corporate marketplace, brand awareness, and all of the burning questions that small- to medium-sized companies cannot afford to overlook, but also often cannot afford to pay for on their own. We're providing that as part of our year-round service, in order to build up to the Expo itself, which we see as a networked marketing event for the new PC infrastructure."

Adds Cooney: "The seminars are one of the major partnering events where we're supporting our clients, not only the exhibitors but the attendees. We have newsletters that go out once a month, and offer networking and communications tools so our partners can communicate with each other, to see ourselves as part of the group. We want to sponsor events and publications so the networking can happen, so people can see the additional new resources that are available, new channels and new avenues to make new partnerships." (COMPUEXPO '93, UNSC Investment Group, 1-800-822-1229) ■

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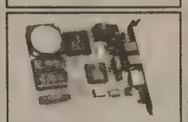

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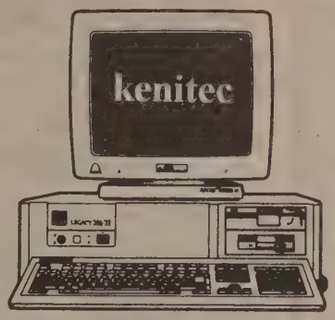

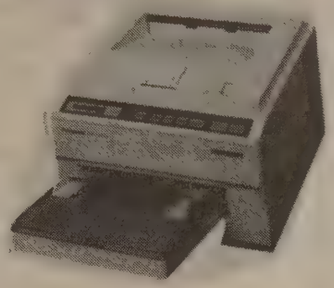

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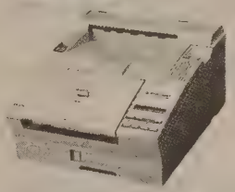

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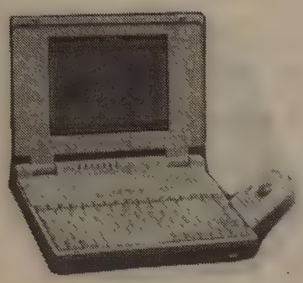

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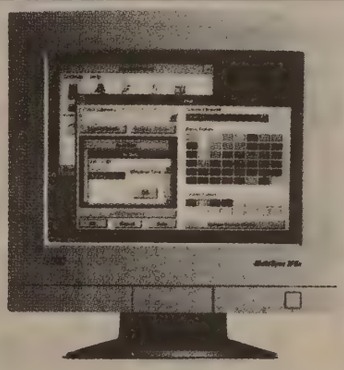

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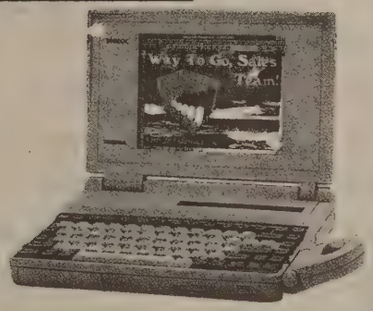

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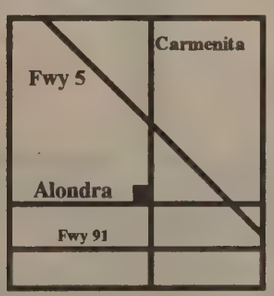

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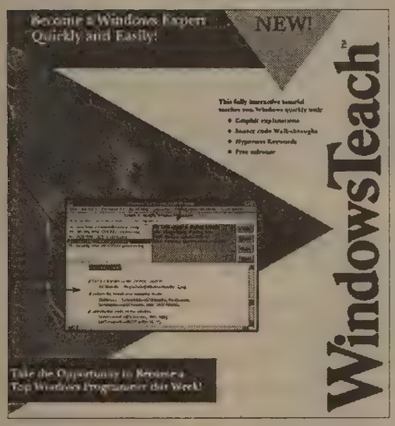
ICONIC QUERY

Iconic Query provides an innovative new database access tool, allowing you to point-and-click at visual scenes instead of using a query language. It comes with a library of icons that can be assigned to different tables. Relationships are assigned by drawing connecting lines between icons. The SQL statement is automatically generated and shown in a separate window. For example, connecting a table of customer profiles to a table of shipping records lets you know how many orders for a certain item have been placed by a customer for the past year by clicking on the customer, shipments, and product icons. ($290) IntelligenceWare, Inc., 5933 W. Century Blvd., Los Angeles, CA 90045.

WINDOWSTEACH

WindowsTeach is an interactive application that teaches you Windows programming quickly and easily with graphic tutorials, hypertext, and "stepwise source cond annotations and explanations." The program has three components: the Concepts Track, the Program Track, and the Hints and Suggestions section. The Concepts Track graphically explains the structure of Windows, and the Program Track has twenty-one clearly structured programs which illustrate key features of Windows. The Hints and Suggestions section provides a list of "do/don't" items that save the user invaluable programming time. ($123) IntelligenceWare, Inc., 5933 W. Century Blvd., Los Angeles, CA 90045.



POWERLEADS! 1.11

PowerLeads! is an easy-to-use, flexible contact management and sales lead tracking system that runs under Windows. It uses a feature-rich relational database to keep track of clients, calls, schedules, priorities, and

Continued

PRODUCT UPDATES

➤**Compton's New Media** announced that consumers will have the opportunity to **trade in** any CD-ROM encyclopedia for Compton's Interactive Encyclopedia featuring Virtual Workspace. Compton's New Media, 2320 Camino Vida Roble, Carlsbad, CA 92009. (619)929-2500.

➤**Dantz** released **Retrospect 2.0** and **Retrospect Remote 2.0**, significant new versions of its Macintosh backup products. Dantz Development Corp., 1400 Shattuck Ave., Berkeley, CA 94709. (510)849-0293.

➤**Fractal Design** has extended its **customer support** capabilities by opening two new online bulletin boards for Macintosh and Windows users. Customers can now ask questions, upload and download files, and get the latest news from Fractal's forums on America Online and CompuServe. Fractal Design Corp., 335 Sprekels Dr., Suite F, Aptos, CA 95003. (408)688-5300.

➤**Frame Technology** released **FrameMaker** and **FrameViewer 2.1** with native support for Univel's **UnixWare** and SunSoft's **Solaris**. Frame Technology Corp., 1001 Rincon Cr., San Jose, CA 95131. (408)433-3311.

➤**Gupta Corp.** announced **Gupta SQLWindows 4.0**, a significantly enhanced version of its client-server application development tool for SQL databases. Gupta Corp., 1060 Marsh Rd., Menlo Park, CA 94025.

➤**MapInfo** released **MapInfo 2.1 for Windows**, its desktop mapping software, along with **MapBasic 2.1**, an upgrade to its programming language for custom desktop mapping applications. MapInfo Corp., 200 Broadway, Troy, NY 12180. (518)274-6000.

➤**MathSoft** introduced **Mathcad 4.0**, a major upgrade featuring Smart Math, a rules-based processor that makes numeric and symbolic calculations faster, easier, and more accurate. MathSoft, Inc., 201 Broadway, Cambridge, MA 02139-1901. (617)577-1017.

➤**OptImage** announced the availability of **CD-I MediaMogul 1.2**, an upgrade to its non-programming CD-I authoring system and **Script to Disc 2.1**, an upgrade to its CD-I premastering software. OptImage Co., 1501 50th St., Suite 100, W. Des Moines, IA 50265-5961. (515)225-7000.

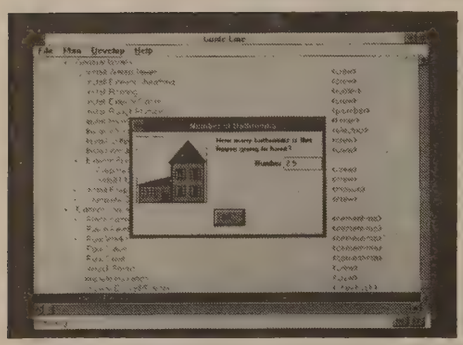
➤**Shiva Corp.** is bundling Apple Computer's **AppleTalk Remote Access** client software with **LanRover/L** and **LanRover/E for AppleTalk Remote Access** remote networking servers. Shiva Corp., Northwest Park, 63 Third Ave., Burlington, MA 01803. (617)270-8300.

➤**Ventura Software** announced a maintenance update to three of its recently released Windows-based desktop Publisher's Tools: **Ventura Publisher 4.1**, **Ventura DataBase Publisher 4.0**, and **Ventura AdPro 1.1**. Ventura Software, Inc., 15175 Innovation Dr., San Diego, CA 92128. (619)673-0172.

expenses, and almost all of its power can be controlled and accessed from a single screen. PowerLeads! offers auto-dialing; mail-merge to Word for Windows, Ami Pro, and ProWrite Plus word processors; and a convenient mailing lable generator that includes eight different Avery lable formats. The built-in autodialer can use pre-programmed calling card numbers, and internal and international dialing access codes. It even knows to automatically take out the area code when dialing local calls. The new version adds a Contact Log that maintains a separate database of activities, such as calls, messages, meetings, and letters, for all contacts. ($295) Pyramid Data, Inc., 1650 S. Amphlet Blvd., Suite 212, San Mateo, CA 94402. 1-800-972-7972.

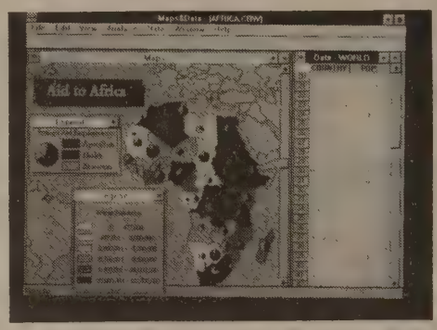
SYMANTEC GUIDE LINE AND GUIDE LINE MAKER

Guide Line is an intelligent, interactive application that builds project schedules based on simple user input. These schedules work with any of Symantec's desktop project management packages—Time Line for Windows, Time Line 5.0 for DOS, and On Target—as well as Microsoft Project for Windows. Guide Line contains sixteen guides including contruction, office relocation, LAN installation, software development, consulting, small-business start-up, a marketing play, and a general project plan. Guide Line Maker is an authoring system that lets users build their own project management guides, either from scratch or by importing previously created project schedules. (Guide Line is $149.95; Guide Line Maker is $499) 10201 Torre Ave., Cupertino, CA 95014-2132. 1-800-441-7234.



MAPS&DATA

Maps&Data is a low-cost, Windows desktop mapping package for visual analysis and presentation. Users can display data geographically to present a succint, informative view of business situations and trends. Its presentation and analytic features let users quickly prepare comprehensive maps that show, for example, market share vs. the competition, site analysis, population



trends, and distribution of inventory. Maps&Data offers a rich variety of geographic, demographic, and statistical data; a broad array of graphic and design elements such as colors, symbols, fill patterns, borders; charts and graphs; drawing tools; and more. ($395) MapInfo Corp., 200 Broadway, Troy, NY 12180. (518)274-6000.

MACINTOSH SOFTWARE

FRAMZ

This package of frame designs for PageMaker 4.2 & 5.0 users includes one hundred frame designs in categories such as straight lines, box patterns, box and line combinations, rounded corner coupons, arrows, scrolls, symbols, holiday, and seasonal. It is installed by simply adding it to the Aldus Additions folder, making FRAMZ available under the Aldus Additions menu choice. ($99) Shade Tree Marketing Corp. 1-800-678-8848.

TELEFINDER 3.0

TeleFinder Group Edition v3.0 Macintosh BBS software includes the BBS host program, user access software with unlimited distribution license, and full documentation. Capable of managing up to thirty-two thousand users, TeleFinder delivers a powerful communications tool to businesses, information providers, schools, and nonprofit groups. Its icon- and menu-based GUI provides easy-to-use email, conferencing, and fast Zmodem transfers. ($425) Spider Island Software Corp., 4790 Irvine Blvd., Ste. 105-347, Irvine, CA 92720. (714)669-9260.

DUPLOCATOR

DupLocator brings together files scattered across multiple disks (such as floppies, removables, shared network volumes, or hard drives) in one powerful step, building a comprehensive list of files. Files sharing the same names are simultaneously determined as being duplicates and added into a separate listing. The lists can be easily manipulated through the use of a set of tools—you can sort, sift, identify, delete, move, copy, compare, catalog, compress, and even change file attributes. ($99) Midnight Software, Inc., 351 W. Davis Ave., Littleton, CO 81020-4207. (303)730-3376.

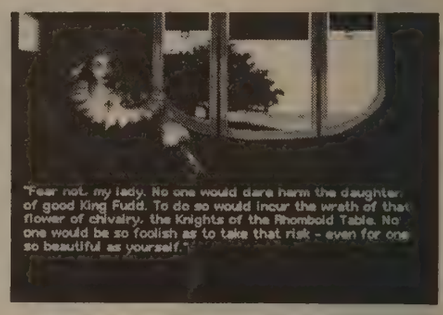
REVIEWS

GAME REVIEWS

By Mike Markowitz

ERIC THE UNREADY

Designed By: Robert Bates
Published By: Legend Entertainment
Distributed By: Accolade
For: MS-DOS (640K; SVGA, VGA, or EGA graphics; supports popular audio cards; mouse recommended)
List Price: $59.95


"Fear not, my lady. No one would dare harm the daughter of good King Fudd. To do so would incur the wrath of that flower of chivalry, the Knights of the Rhomboid Table. No one would be so foolish as to take that risk - even for one so beautiful as yourself."

The entire category of comic adventure games offends some players who take their entertainment Very Seriously Indeed. When "comic" turns out to mean bad puns, sexist humor, and obscure in-group jokes about other games, there is plenty to offend everyone. But Eric the Unready is worth a second look.

As Eric, a luckless Knight in the donut-shaped world of Torus, your quest is to rescue the abducted Princess Lorealle from the Wicked Queen Morgana and her consort, Sir Pectoral. To complete the quest you must find several magical objects, including the Pitchfork of Damocles, the Crescent Wrench of Armageddon, and the Raw Steak of Eternity. Before you can do that you must

Continued on page 91

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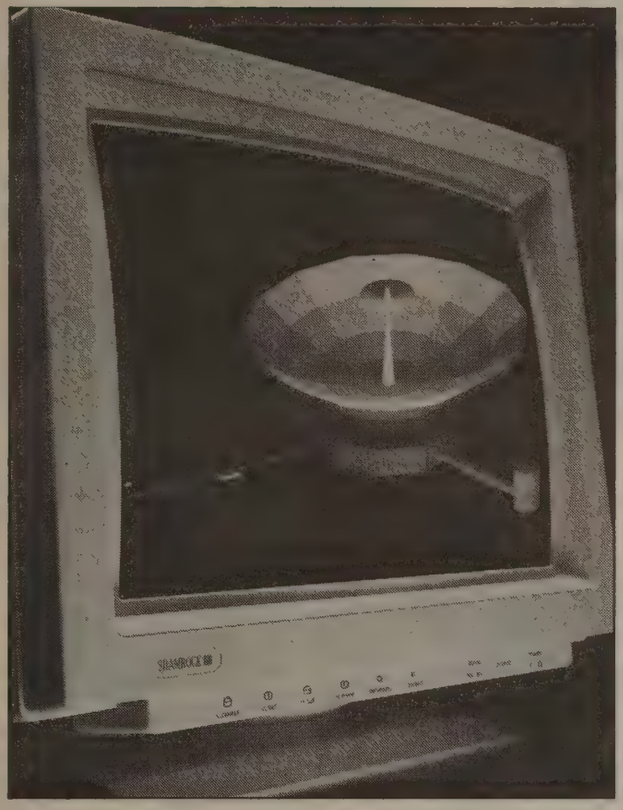

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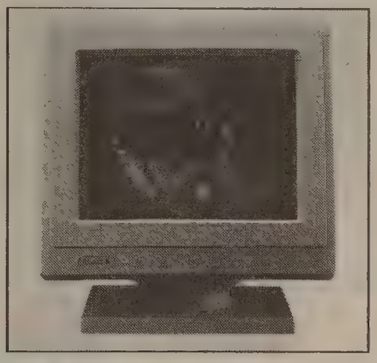
- Full Screen • Universal Power Supply 110/220
- Compatible With Apple Mac II
- Low Radiaton Options

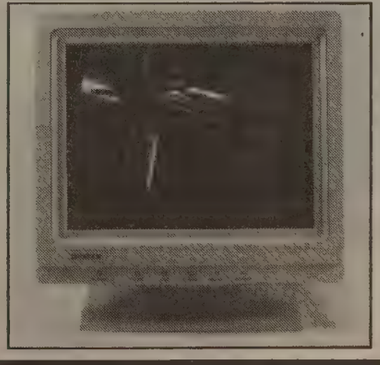


SRC-1452 14" HYPER VGA II

- Horizontal Frequency: 30-38KHz, 47-50KHz
- Resolution: Maximum 1024x768 (Non-Interlaced) .28mm CRT
- Full Screen • Universal Power Supply 110/220
- Compatible With Apple Mac II

SRC-1403/SRC-1501 14", 15" HYPER VGA III

- Horizontal Frequency: 28-64KHz
- Resolution: Maximum 1280x1024 (Non-Interlaced) .28mm CRT
- Compatible With Apple Mac II
- Refresh Rate: 70Hz at 1024x768
- VESA Standard
- Automatic Pin Cushion Compensation



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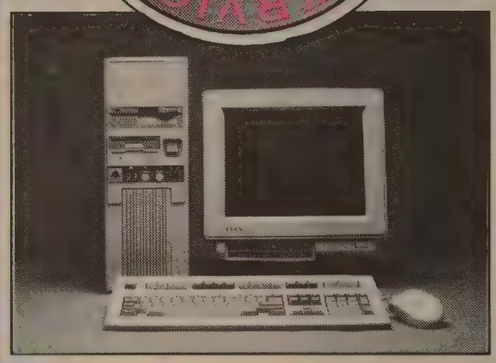

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- Enhanced 101 Keyboard
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- Enhanced 101 Keyboard
- Desktop or 5 Bay Vertical Case
- Free Hi Res 1450 DPI Mouse

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- 2 Serial, 1 Parallel, & 1 Game Port
- Enhanced 101 Keyboard
- Desktop or 7 Bay Vertical Case
- Free Hi Res 1450 DPI Mouse

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SVGA 1MB 16 Bit Trident	65
Acumos SVGA 1MB Accelerator w/16 Mill Colors	75
PVGA 1MB Win Accelerator	**155**
Diamond Hi Color	130
Diamond 24	155
Diamond 24x	165
Diamond Stealth 24	**185**
Diamond Stealth	185
Diamond Stealth Vesa Local Bus	**215**
Diamond Viper S3-805 2MB Ram	**450**
ATI Graphic Ultra Plus 1MB	320
ATI EISA VLB PRO	**630**
ATI Graphic Ultra Pro 2MB	**430**
ATI Vesa Local Bus Pro 2MB	**430**
ATI Graphic Vantage	130
NDI VESA Local Bus	195
STB VESA Local Bus	195
Genoa Vesa Local Bus	**145**
Orchid Fahrenheit S3-801 16 Mill Colors	165
Orchid Fahrenheit S3-805 Vesa Local Bus	215
Orchid Fahrenheit S3-805 VLB-VA	265

HARD DRIVES

40 MB IDE	$135
85 MB IDE	185
125 MB IDE	**215**
170 MB IDE	**245**
210 MB IDE	**290**
245 MB IDE	**320**
310 MB IDE	**450**
510 MB IDE	**840**
1.2 GB IDE	**1435**
125 MB SCSI	320
210 MB SCSI	385
310 MB SCSI	620
510 MB SCSI	930
1.2 GB SCSI	1435
1.7 GB SCSI	2290
2.0 GB SCSI	2640

ADD ON CARDS

AT I/O (2S, 1P, 1G)	$18
RS 232 Port	15
Parallel Port	12
Game Port	12
Clock	12
Multi I/O for XT	25
Super Multi I/O for XT	35

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CONTROLLERS

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IDE 4FD/2FD	35
IDE 2FD/2HD w/2MB Cache	**185**
IDE 3rd/4th FDD	45
IDE 2.88 MB 2FD/2HD	**60**
IDE 2.88 MB 4FD/2HD	**75**
DTC 2290 EISA IDE	130
DTC 3292 EISA SCSI	**330**
DTC 3290 EISA SCSI II Exp to 4MB	**445**
DTC 2270 VLB	130
Alpha Research VLB IDE w/2MB	270
Alpha Research EISA SCSI II	320
Alpha Research EISA SCSI II Exp to 16MB	440
Ultrastor 15C IDE Cache Controller	**210**
Ultrastor 14F SCSI Controller	**240**
Ultrastor 24F EISA SCSI	**385**
Ultrastor 34F VESA LB SCSI	**310**
Orchid IDE Vesa Local Bus	**95**
Vesa Local Bus Controller w/ I/O	**55**
VESA LB for 50MHz	**85**

MONITORS

14" 1024x768, .39 Dot	$235
14" 1024x768, .28 Dot	275
14" 1024x768, .28 Dot NI	300
CTX 1560 15" 1024x768, .28 Dot	450
CTX 1760S 15" 1024x768, .31 Dot	770
CTX 1760 17" 1024x768, .28 Dot	885
View Sonic 4 14"	295
View Sonic 5E 14"	385
View Sonic 6E 14"	328
View Sonic 6FS 15"	525
View Sonic 7 17"	955
View Sonic 8 20"	1560
View Sonic 15	625
View Sonic 17	1160
View Sonic 21	2290
Mag 15F 15"	555
Mag 17F 17"	995
IDEK 17 5127 17"	890
Toshiba 17" 1024x768 .31 Dot	870
NEC 3FGX 15"	645
NEC 4FG 15"	779
NEC 5FG 17"	1310
NEC 6FG 20"	2325
KFC 15" Digital Monitor 1280x1024	495
Mono 14" Monitor	105
Mono 14" SVGA	125

KEYBOARDS

Lite On/BTC/Mitsumi 101 Key	$35
Focus 2001	42
Focus 9000 Programmable	65
Keytronic 101 Key	45
Fujitsu 101K 4700	45
Chicony 101 Key	40
Northgate 101 Key	55
Northgate 102 Key	75
Northgate Omni Ultra 130 Key	95

ETHERNET CARDS

Ethernet 16 Bit Genesis	$89
Ethernet 16 Bit Novell	139
Intel Ether Express	139
16 Bit Western Digital	195
Ethernet 32 Bit Mylex	350
Ethernet 32 Bit Novell	689
Ethernet 32 Bit Vesa Local Bus	780
Artisoft AE-2 Starter Kit	489
Artisoft AE-2 Adapter	220

CD ROM

Texcel CD Rom	$480
Sony 31A 490MS	265
CD Rom Software Bundle w/5 Titles	105
Mutsumi CD ROM	**210**
Sony 541 SCSI	475
NEC 84 Internal	595
NEC 74 External	635
Multimedia NEC 84 Upgrade Kit	950
Multimedia NEC 74 Upgrade Kit	1050
Media Vision Fusion CD 16 Package	495
Royal Super CD Package	395
Multimedia Creative Labs Upgrade Kit Package	595
Multimedia Creative Labs Starter Kit Package	495

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Logitech Serial	68
Logitech Bus	78
MicroSoft Serial	68
MicroSoft Bus	85
Generic Track Ball	35
Logitech Trackball Serial	95
Logitech Trackball Bus	115

TAPE BACKUPS

Colorado 120 MB	$170
Colorado 250 MB	230
Archive 250 MB	195
120MB/250MB Tape Cartridges	24/27

CD TITLES

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US Atlas/World Atlas	25
The Animals	25
US Atlas w/Auto Map	38
Reference Library	25
US History	35
Microsoft Bookshelf	69
Carmen San Diego	25
Sherlock Holmes	35
Loom	25
Stellar 7	25
4 Titles CD	45

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Pro Audio Spectrum 16 Bit	$235
Sound Blaster	85
Sound Blaster Pro Basic	165
Sound Blaster ASP16	260
Sound Galaxy w/2 speakers	**110**
Speaker for Soundboard	15

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Kurta 12x12"	295
Calcomp 12x12"	320

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2400 Internal	$45
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96/24 External	125
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RESOURCES

Calendar Of Events

CONFERENCES, SHOWS, AND OTHER SPECIAL EVENTS

APRIL

April 18 Computer Show & Sale. Antelope Valley Fairgrounds. MarketPro Shows. Call: (415)388-8893.

April 18 NOCCC Computer Swap Meet. Fullerton City College. North Orange County Computer Club. Call: (714)521-6915.

April 19–23 Object Expo. New York. *Journal of Object-Oriented Programming.* Call: (212)274-9135.

April 24 Computer Show & Sale. CSUN, North Campus. Richard James Corp. Call: 1-800-433-7469.

April 25 Computer Show & Sale. Scottish Rite Center, San Diego. MarketPro Shows. Call: (415)388-8893.

April 26–29 NCGA '93 Conference: Computer Graphics Solutions—Applications For Implementation. Philadelphia. NCGA. Call: (708)698-9600.

April 26-30 Win-Dev: The International Developers Conference For Windows. Boston. Center for Software Development, Boston University. Call: (508)649-4200.

April 27–28 Sybase Client/Server Technology Fair. San Jose. Sybase User Meeting & Training Conference. Call: 1-800-767-2236.

April 27–30 Incotek '92: Exhibition And Conference For Telecommunications And Information Systems. Warsaw, Poland. Global Technologies. Call: Karen Ventimiglia, (202)797-3782.

MAY

May 1 Computer Show. Sherman Entertainment Center, Reseda. Computer Marketplace. Call: 1-800-800-5600.

May 2 Computer Show. Sequoia Conference Center, Buena Park. Computer Marketplace. Call: 1-800-800-5600.

May 2 Computer Show & Sale. Glendale Civic Auditorium. Richard James Corp. Call: 1-800-433-7469.

May 3–5 Windows Objects: Object Linking & Embedding 2.0 Developers Conference. Seattle. Microsoft. Call: 1-800-421-2388.

May 3–6 LotusWorld '93 Conference. Boston, MA. Lotus Publishing Corp. Call: 1-800-524-1857.

May 3–7 DB/EXPO. San Francisco. NDN Enterprises. Call: (415)966-8934.

May 4–6 Digitalk's 10th Annual Developers Conference. Costa Mesa. Digitalk. Call: (310)645-1082.

May 8 Computer Show & Sale. Ventura Fairgrounds. MarketPro Shows. Call: (415)388-8893.

May 8 Computer Show & Sale. Anaheim Stadium, indoors. Richard James Corp. Call: 1-800-433-7469.

May 11–13 Computer Storage Exposition And Conference. Anaheim. Kotch & Poliak. Call: (212)486-6186.

May 11–13 SunWorld '93 Conference And Expo. San Francisco. World Expo Corp. Call: 1-800-225-4698.

May 12–14 GTC '93—Government Technology Conference Breaking Through The Fiscal Wall. Sacramento. Government Technology Magazine. Call: (916)363-5000.

May 15–16 Computer Show. LA Fairgrounds, Pomona. Computer Marketplace. Call: 1-800-800-5600.

May 16–20 ICA COMNET: The Conference & Expo For The Enterprise Network. Dallas. World Expo Corp. Call: 1-800-225-4698.

May 19–21 Meckler's 4th Annual Virtual Reality '93 Conference & Exhibition. San Jose. Mekler Conference Management. Call: 1-800-635-5537.

May 22–23 Computer Show & Sale. CSUN, North Campus. Richard James Corp. Call: 1-800-433-7469.

May 23 Computer Show & Sale. Scottish Rite Center, San Diego. MarketPro Shows. Call: (415)388-8893.

May 24–28 ESRI's Annual User Conference. Palm Springs. Environmental Systems Research, Inc. Call: (909)793-2853.

May 25–27 NeXTWORLD Expo And Conference '93. San Francisco. DCI. Call: 1-800-767-2336.

May 29 Computer Show & Sale. Anaheim Stadium, indoors. Richard James Corp. Call: 1-800-433-7469.

May 30 Computer Show & Sale. Antelope Valley Fairgrounds. MarketPro Shows. Call: (415)388-8893.

MAY 15–16

COMPUTER SHOW

Pomona

Computer Marketplace computer shows feature over three hundred exhibits with thousands of products. They are now featuring seminars open to all users—from the beginner to the advanced computer user. Admission is $7.00 and shows are from 10:00 am to 5:00 pm. Los Angeles County Fairgrounds (Fairplex), Pomona. Call: 1-800-800-5600.

APRIL 27

"JAZZED ON MULTIMEDIA" SEMINAR

Los Angeles

"Jazzed on Multimedia" Seminar series is directed to developers and end-users who want to jazz up communication and presentations with Macintosh-based multimedia solutions. The morning session of the seminar focuses on hardware and software that integrates the power of desktop business applications with multimedia technology. The afternoon session will explore the development of multimedia presentations, kiosks, videos, and interactive training programs as well as the technical concerns of multimedia producers. Contact: Graphix Zone, 38 Corporate Park, Suite 100, Irvine, CA 92714. (714)833-3838.

JUNE

June 3 The Critical Issues: Getting At The Right Information To Support Competitive Decision Making Seminar. Los Angles. Metaphor, Inc., Call: 1-800-446-3824.

June 5 Computer Show. LA Fairgrounds, Pomona. Computer Marketplace. Call: 1-800-800-5600.

June 6 Computer Show. Sequoia Conference Center, Buena Park. Computer Marketplace. Call: 1-800-800-5600.

June 6 Computer Show & Sale. Glendale Civic

continued on page 80

Computer MARKETPLACE

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May 2 Sunday — **BUENA PARK** - Sequoia Conference Center
Take the Beach Blvd. Exit off the 91 Freeway, go one block North to 7530 Orangethorpe.

May 15 & 16 Saturday & Sunday — **POMONA** - L.A. County Fairgrounds (Fairplex)
Exit Highway 10 at Fairplex Drive. Go North to Mckinley, turn right. Turn Left on White Avenue to Gate 14.

June 5 Saturday — **POMONA** - L.A. County Fairgrounds (Fairplex)

June 6 Sunday — **BUENA PARK** - Sequoia Conference Center

June 26 & 27 Saturday & Sunday — **POMONA** - L.A. County Fairgrounds (Fairplex)

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ORCHID FAHRENHEIT ACCELERATOR W/1MB .... ADD$80
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VESA LB VIDEO CARDS - see under VLB M/B

MISCELLANEOUS

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Jumbo Tracker JT20 250MB $420
Colorado parallel port Tape Back-up
External Drive Kit KE-09 (no adapter) $80
Tape Drive Adapter AB-11 (for ext.) $40
FC-10 500Kb/s-1Mb/s Adapter Kit $80
TC-16 Data Compression Adapter Kit ... $189
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386-33 128K cache w/o CPU; w/CPU OPTI $95/170
386-40 128K cache w/o CPU; w/CPU OPTI $100/180
386-33 128K cache w/o CPU; w/CPU UMC $90/165
386-40 128K cache w/o CPU; w/CPU UMC $95/175
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486DX-33MHz 128K cache w/o CPU OPTI $130
486DX2-50MHz 128K cache w/o CPU OPTI ..... call
486DX-50MHz 128K cache w/o CPU OPTI ..... call
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Tekram DC-680 VLB IDE Ctrl. (exp. 16MB) $105

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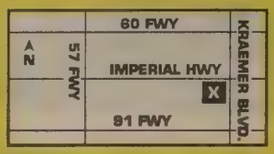

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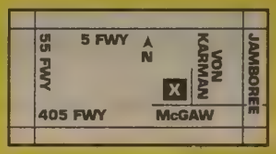

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USER GROUP NETWORK

BULLETIN BOARDS

RESOURCE LISTING CHANGES

As electronic bulletin boards continue growing, system operators are adding phone lines that include additional area codes. Beginning with issue #100, *MicroTimes* introduced a "Multi-Zone" category for BBSes with access phone numbers in multiple area codes.

Thank you,
MicroTimes staff

MULTI-ZONE

Aussie BBS. (818)337-9701, (909)598-2502. 8-N-1. 10 lines, chat, games, highest quality adult GIFs, 18,000 files, and more. Sysop: Mike Szabados. [Exp. #109.]

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Entertainment & Consumers Network. (310)204-6007, (818)784-3039, 760-3828, 888-3942. 8-N-1, 24 hrs., 300/1200/2400. New Internet mail and newsgroup services available with free trial membership. [Exp. #109.]

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Original Apple Corps BBS. (213)454-4660, (310)454-4660. 300/1200/2400. Apple II support. Free. Sysop: Sheila Dowst. [Exp. #108.]

VVBBS—Valley Village BBS. (213)628-9640, (310)276-9970, (818)763-8160. 8-N-1, 24 hrs., 16,800. 40+ new files every day, great games, friendly sysop. Free trial. [Exp. #108.]

213

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LAAUGLine. (213)387-1002. 24 hrs., 300/1200/2400. Amiga. Sysop: Thom Irwin. [Exp. #108.)

PhotoPro! BBS. (213)223-9285, 227-7127. 1200/2400/9600/14,400/16,800. Six lines, 30,000 files, 45,000 msgs, online games, U'Nlnet. Sysop: David Spellman. [Exp. #110.]

Twelve Steps BBS. (213)653-7508. 8-N-1, 24 hrs., AA, SAA, OA, NA, ACA, AL-Anon, etc. Free. Sysop: Gene G. [Exp. #108.]

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310

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LA Computer Society BBS. (310)475-8720. 8-N-1, 24 hrs., 2400 only. Full access to Computer Society members ($36/yr), message bases, SIGs, and club information. Sysop: Debbie Rhodes. [Exp. #108.]

La Mirada's The Modems Delight BBS. (310)944-1221. 24 hrs., 300/1200/2400/9600. Multi-interest files, doors, games, and fun. Running Telegrad BBS v2.7, BlueWave Echo-mail, 1:102/430 Fidonet. Sysop: Ronald Dishon. [Exp. #108.]

LAMG (Los Angeles Macintosh Group). (310)559-MACS. 8-N-1, 24 hrs, 300/1200/2400/9600/14,400. So. Cal's busiest all Mac multiline BBS. 300MB of Mac news, reviews, rumors, and more. [Exp. #108.]

Mac-HAC'ers BBS. (310)549-9640. 8-N-1, 24 hrs., 300/1200/2400/9600. All computers, over 3GB of programs, 3 CD-ROMs, Fidonet Echo mail msg. Validation requested. [Exp. #110.]

One World. (310)372-0987. 300/1200/2400/9600/14,400. Ecology, gardening, health, alt. news, Fidonet, USENET, Internet. Free. [Exp. #110.]

the original off off-broadway BBS. (310)453-7038. 8-N-1, 24 hrs., 300/1200/2400/9600. Non-subscription, text files/messages only. Using MajorBBS software and CompuCom Speedmodem. Sysop: James Gossage. [Exp. #109.]

Pacific Teleconnect BBS. (310)986-0154. 24 hrs., 1200/2400. Six lines, over 10,000 files, networking forums, chat, and more. Sysop: Ken Summerville. [Exp. #109.]

Rola-Tek's BBS Effects. (310)673-8976. Wildcat, online games, files, net mail, and adult areas. Free. [Exp. #109.]

SBAMUG. (310)792-8083. First class, GUI. [Exp. #109.]

SGML User Group BBS. (310)642-7465. 8-N-1, 24 hrs., 300/1200/2400/9600. SGML user support, classifieds ads, downloadable files, SGML info, network mail. Free. Sysop: Brett Huffman. [Exp. #109.]

South Bay Commodore Users Group (SBCUG). (310)973-4949. 6:00 pm–6:00 am, 300/

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BBS SPOTLIGHT

By John Wolcott

KBBS: A PREMIUM SUBSCRIPTION BULLETIN BOARD

Exploring all of the facets of a full-featured BBS can be an adventure in itself. There are many ways to entertain, inform, and amuse. If you're interested in the social aspects of BBSing, a subscription board is the way to go. Subscription BBSes are a great way to get all of the features you could possibly want; all with one call. Systems that feature multiple lines from multiple area codes, and require constant System Operator attention, demand that operators charge a usage fee. Most are run as a business for profit. It's usually a small price to pay for the return. If you're looking for a BBS that offers everything but the kitchen sink, here it is!

KBBS Bulletin Board is located in Los Angeles. Thirty-two telephone lines are available for local (or almost local) access from any part of the greater Los Angeles area. It boasts being LA's busiest BBS and I'm a believer. Shareware, private and group chats, email, matchmaking, database information, and social events headline the offerings. The membership roster is big. Did I say big? I meant huge! With over three thousand members, the BBS lines stay busy. At peak calling time periods, it may take some persistence to get in. Once you connect, you'll find that KBBS is one of the easiest bulletin boards to use. You're first confronted with an extensive biographical questionnaire. Information you provide will be used later for matchmaking searches by other users. Menus and online help are available no matter what part of the BBS you're accessing. KBBS has no hourly fees, no upload/download ratios, and no registration fees. It does have a great deal of entertainment value.

Shareware available for downloading includes titles for almost any type of computer you'd care to use. Files for Macintosh, IBM (both DOS and Windows formats), OS/2, Commodore 64 and 128, Apple, Amiga, UNIX, and Atari occupy over 1GB of drive space. Two high-speed access lines are available which would be the choice for downloading. Running downloads at 14,400 baud will save a great deal of time; and money if you're not calling in locally. Access numbers for all areas and the high-speed lines are available from the "A" choice on the main menu.

The private and group chats allow you to intermingle with any of the users that are currently connected; providing that they are in the "allow chat" mode. Any user may select an option not to be disturbed by other users. You may request a private chat with another user and they may or may not opt to chat. There are an assortment of chat channels with different decency ratings; just like movie ratings. When you enter the chat area, you'll view a display of which chat channels are in use. All you need to do is go where the group is. The group chats are interesting just to watch. For the more adventurous, jump on in and say hello. Whatever you type on the group chat channel, everyone views, immediately preceded by your name or alias. I found the chat groups friendly. It is easy to spend hours hanging out in group chat.

You may send email to any other system member or send mail to a wide range of "Public Discussion Boards." A friendly screen editor makes leaving mail an easy task. When reading messages from other members, you'll be prompted for a reply. They really couldn't make it any easier.

Matchmaking is enhanced by searches based on chosen criteria ranges. The Matchmaker search criteria ranges include minimum age, days since their last call, gender, maximum age, least times called, and sexual preference. Setting these ranges and searching will yield a list of members that fit the given specifications.

The database information available is unbelievable. More specific member information is at your fingertips along with system information, consumer information, telephone exchanges, online publications and videos (ANSI), Federal agencies, banks, rental cars, and even more.

Social events for this fast-paced BBS are announced on screen bulletins when you log-on. This is your chance to literally "handshake" with other members.

KBBS is an easily accessed, subscription-based BBS with more features and information than you can shake a stick at. Subscription rates range from $19 to $156 depending upon your desired level of access and subscription length. Subscriptions can be purchased with Visa, Mastercard, or American Express.

KBBS can be reached by calling (310)558-0145, (310)532-1700, or (818)989-3875; 8-N-1.

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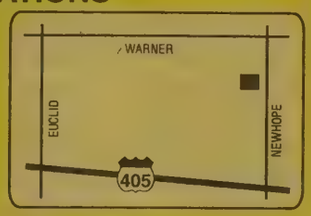

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BBSes

1200/2400. Graphics and library. Sysop: William Boggart. [Exp. #110.]

Tasmania BBS. (310)437-8460. 8-N-1, 300/1200/2400. Programming, software troubleshooting, downloadable source code. InfiNet node 34, WWIV 4.22. Free. Sysop: The Tasmanian Devil. [Exp. #108.]

Western Publisher's Exchange. (310)865-7374. 24 hrs., 300/1200/2400/9600/14,400. A professional desktop publishing and graphics system. Sysop: Kelly Tompkins. [Exp. #110.]

Xchange. (310)452-3374. 8-N-1, 300/1200/2400/9600. All ads, all free. Classifieds for cars, electronic jobs, etc. [Exp. #109.]

714

Alpha/Net BBS. (714)830-0402 (14,400), 830-0311 (16,800). 24 hrs. Multi-node chat, Windows, games, comm., adult. Local echo mail. No ratio, free access. Sysop: Jamie Wilson. [Exp. #108.]

Auto Shoppers BBS. (714)474-1446. 8-N-1, 300/1200/2400. Classified ads on cars, trucks, and vans. [Exp. #109.]

Big Blue OS/2 BBS. (714)526-7610. 24 hrs., 300/1200/2400/9600/14,400. OS/2, Windows, & DOS shareware files, msgs, doors. Sysop: Don Beaman. [Exp. #110.]

The Black Crystal BBS. (714)638-3581. 24 hrs., 1200/2400/9600/14,400. Online games, shareware, GIF files. Sysop: Larry Tournay & Chris Wilson. [Exp. #109.]

Buffy's Place BBS. (714)558-9502, 996-1014, 435-0294, 636-8606. 8-N-1, 300/1200/2400. Orange CO's most exciting adult BBS. Open forum, free trial membership, email, social events, and more. [Exp. #108.]

Commodore Computing. (714)673-2185. 8-N-1, 24 hrs., 300/1200/2400. 64/128. Tech support and games. No reg fee. Sysop: Stephen Fabre. [Exp. #108.]

Comp EMC. (714)454-1818. Medicare info, message, medical supplies/providers. Subscription board, some free access areas. [Exp. #110.]

CONXions MatchMaker BBS. (714)543-2669. 1200/2400. Shareware, MIDI, Adult GIFs. Free time daily. Sysop: Ray Hunter. [Exp. #110.]

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Diaspar Virtual Reality Network. (714)831-9101 (2400), 362-9995 (9600). Home EduTainment Center, 20+ lines, experience virtual reality. Sysop: David Mitchell. [Exp. #108.]

ExecuClub BBS. (714)640-1950. CD-ROM, Windows, utils, business, entertainment, and more. Sysop: Richard Hunter. [Exp. #110.]

Happy Trails BBS. (714)547-0719. 2400/9600/14,400. MS-DOS only, 26 CD disks, 4GB of shareware. Membership $25/6 mo, $40/yr, $99/3 yrs. Sysop: Don Inglehart. [Exp. #109.]

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The Master Connection BBS. (714)651-9815. 24 hrs., 1200/2400/9600. Lots of games, utilities, graphics. No fee. Sysop: Mark Duvall, Jr. [Exp. #109.]

Midnight Mission BBS. (714)848-6808. 8-N-1, 24 hrs., 1200/2400/9600/14,400. Large game and GIF file areas. Full access with call back. Sysop: Marty Strech. [Exp. #108.]

Online Exchange. (714)870-4614. 2400–14,400. Shareware, large adult GIF file area, games, 2.5GB online. Sysop: Bob Aune. [Exp. #108.]

Sherlocktron. (714)492-0724. 8-N-1, 24 hrs., 2400. Sherlock Holmes BBS with lists of societies, publications, and purveyors. Sysop: Willis G. Frick. [Exp. #110.]

Software Exchange BBS. (714)552-3515. 8-N-1, 1200/2400/9600/14,400/ Over 30,000 files, over 3700 members. Free trial membership. Sysop: John Coon. [Exp. #110.]

Software Gallery BBS. (714)991-4019. 1200/2400/9600/14,400. Games, graphics, utils, adult, CD-ROMs. Free. Sysop: Joe Engebretson. [Exp. #110.]

Spectre's OS/2 Technical Exchange. (714)751-9307, 751-6534. 8-N-1, 24 hrs. OS/2 only! National mags, CD-ROM, .5GB, no validation. Sysop: Jay Zebb. [Exp. #109.]

WinSIG BBS. (714)363-9802. 24 hrs., Windows 3.xx shareware. Sysop: Firas Bushnaq. [Exp. #108.]

805

The Farpoint BBS. (805)582-1621. 1200/2400/9600/14,400. IBM files, GIFs, USA!net, THROBnet, FLYnet. Member of United Sysops Assoc. Sysop: Gary Bisner. [Exp. #110.]

PB-Info Express. (805)948-4900. 24 hrs., 14,400. PowerBook info, shareware, Q&A, PB classifieds, vendor support, Internet mail. [Exp. #110.]

10 Bits! (805)297-8538. 24 hrs., 300/1200/2400. Instant access, uploads, downloads, email, fantasy role-playing games. Sysop: Jon Bek. [Exp. #109.]

818

AABBS (Asia America BBS). (818)284-4519. 24 hrs., 300/1200/2400/9600/14,400. Specialize in bridging the gap between Asian and American cultures, with a special focus on business. [Exp. #109.]

African American BBS! (818)914-0498. P-Funk online. Free. Sysop: Jeffery Mitchell. [Exp. #110.]

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AutoComp. (818)767-8087. 300/1200/2400/14,400. Electronic newspaper and social BBS. Free access, one key logon. Sysop: J. Macoy. [Exp. #110.]

Bad-Boy's BBS. (818)846-9304. 24 hrs., 2400–16,800. Fido 1:102/842. 54+ online games, CD-ROM, No fees. Sysop: Brandon L. Heess. [Exp. #108.]

Chatterbox! BBS. (818)995-6959. 8-N-1, 24 hrs., 2400/9600/14,400. All adult, GIFs, shareware, freeware, multiline chat, library, games, and CD-ROMs. Sysop: Don Adler. [Exp. #109.]

Data Field BBS. (818)966-3305. 8-N-1, 24 hrs., 1200/2400/9600/14,400. OS/2, DOS, programming, graphics. Free. Sysop: David Levin. [Exp. #109.]

The Drawing Board. (818)965-6241. 8-N-1, 24 hrs., 1200/2400/9600. DTP, graphics, messages, and PD file sections. Sysop: Char Rice. [Exp. #108.]

Hottips BBS, Glendale. (818)248-3088, 1200–14,400. Five lines, 6000+ files, 1000+ users, 1GB online, QWK mail door, professional emphasis. RIME Network. Sysop: Michael D. Callaghan. [Exp. #108.]

Infinite Wisdom North. (818)951-2796, 951-6097. 8-N-1, 24 hrs., 1200/2400. Educational, science, engineering, online games, doors, chat, offline mail reads. Free trial account. Sysop: Tom Honles. [Exp. #108.]

KBTC BBS. (818)967-0701. 24 hrs., 2400/9600. Business, education, games, and IBM-compatible computers. Free access on first call. Sysop: James Kalinowski. [Exp. #109.]

Merchants Of Wonder BBS. (818)759-0060, 759-0097, 7095638. 24 hrs. Online games, multiuser chat, matchmaker, forums, 5000+ files. Free trial. Sysop: Teresa Brandt and John Lipski. [Exp. #109.]

MUSO-BBS. (818)884-6799. 9600. Musician and music industry oriented BBS. Discussion forums, files, talent database. Sysop: Myles Wakeham. [Exp. #108.]

Panasia BBS, Glendale. (818)569-3740. 1200–14,400. Glendale, QWK/REP, Intelac RegHub, no fees. [Exp. #109.]

Parthenon BBS. (818)727-7070. 24 hrs., 300/1200/2400/9600/14,400. Utils, Windows, Toshiba stuff, Usenet feeds. Sysop: Steven Foster. [Exp. #109.]

PC Solutions BBS. (818)776-2397. 9600. Fidonet, all the latest wares, games, utils. Free. [Exp. #110.]

The Rogue's Guile. (818)347-4291. 14,400. Online games, tons of new files, Fidonet, Fishnet, member World Wide File Distribution Network. [Exp. #110.]

Sahara Club. (818)893-1899. 8-N-1, 16,800. Off-road, timber, guns, and more. Fidonet, free. Sysop: Patrick Martin. [Exp. #108.]

Software Bank. (818)993-5516. 2400/9600/14,400. OS/2, Windows, Star Trek Fidonet echos, games, and chat. 13,000+ files D/L. [Exp. #110.]

Text City RBBS. (818)566-6648. 2400. ASCII text files of all kinds: computer how-to, tutorials, fiction, historic text files, and more. Free. Sysop: Tim Chambers. [Exp. #109.]

Tin Shack BBS. (818)992-3321. Over 1.5GB of files. Local numbers available. Free. Sysop: Guy Nohrenberg. [Exp. #110.]

Tri-City Apple BBS. (818)288-6540. 8-N-1, 24 hrs., 2400. Mostly Apple II, email, PD, UL/DL. [Exp. #108.]

24th Century BBS. (818)305-8300, 568-9259, 558-1176, 986-2872. 8-N-1, 24 hrs., 300/1200/2400. Multiline, chat, email, SIGs, databases, new user help. One month free. Sysop: DragonSeed. [Exp. #108.]

VICUG BBS (Valley IBM/Compatibles User Group BBS). (818)879-8428. 8-N-1, 24 hrs., 300/1200/2400. Speakers, demos, newsletter, disk bank. Voice info: Frank Yao, (818)706-0564. [Exp. #110.]

Wizardry BBS. (818)222-4444. 1200/4800/9600/14,400. Chat, games, U/L, D/L, mulitline. Free. [Exp. #109.]

909

The Digital Publishing BBS. (909)861-0250. 300/1200/2400/9600/14,400. Online publishing, programs, files. 386BSD, OS/2, Windows, DOS. [Exp. #108.]

916

Greystone BBS. (916)758-1257. 24 hrs., 1200/2400/9600/14,400. 1.4GB, UNIX, USENET feed, msg base. No fees, no charge. [Exp. #110.]

Video ViSion BBS. (916)682-1655. 24 hrs., 300/1200/2400/9600. Games, graphics, Windows & source code. 360MB. Sysop: Roel Sarceno. [Exp. #108.]

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ASSOCIATIONS

Black Data Processing Assoc., LA Chapter. Meetings: 4th Tues., 6:30 pm, ULTC, 7266 S. Figueroa St., Los Angeles. Call: (310)673-6522, 1-800-727-BDPA. [Exp. #108.]

Data Processing Management Association. Meetings: 2nd Thurs., 7:00 pm. An organization composed of all levels of management personnel who have an interest in the field of information processing. Call: (310)459-9680 or (213)225-9210. [Exp. #108.]

Independent Computer Consultants Association, Los Angeles Chapter. Meetings: 1st Thurs., 6:00 pm. Prepaid reservation, $25, or at the door, $35. The LA chapter provides referral services. Call: (213)872-1811. [Exp. #110.]

Orange County Association Of PICK Professionals. Meetings: 3rd Wed., 6:00 pm, Claim Jumper Restaurant, 18350 Brookhurst St., Fountain Valley. Dinner: Members, $20; nonmembers, $25. Without reservations add $5 additional. Call: (714)641-6347. [Exp. #110.]

Software Council Of Southern California. A nonprofit trade association whose membership is comprised of software development organizations as well as companies providing support and services to the local software industry. Call: (310)328-0043. [Exp. #112.]

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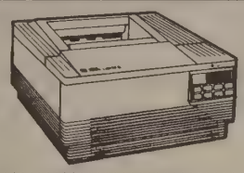

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AMIGA

LAAUG—Los Angeles Amiga User Group. Meetings: 3rd Wed., 7:30 pm, Veteran's Memorial Auditorium, Overland Ave. & Culver Blvd. Many SIGs, rookies, monthly PD disks. Call: Kip Hammond, (310)390-3010. [Exp. #111.]

South Orange Commodore Klub—SOCK. Meetings: 3rd Sat., 9:00 am, Computer Guild, Suite 1003, 24001 Via Fabricante, Mission Viejo. Supports Commodore and Amiga, new users SIG. Call: Don, (714)830-2430. [Exp. #109.]

APPLE

Orange Apple Computer Club. Meetings: 1st Sat., 9:00 am, Orange Coast College, Chemistry Lab. Apple II supported, presentations, and disk of the month. Call: (714)731-9243. [Exp. #112.]

Original Apple Corps, Apple II User Group. Meetings: 2nd Sun. Support for beginners through experts. Write: PO Box 90065, Los Angeles, CA 90009. Call: Fred Duffy, (310)475-8400. BBS: (310)454-4660. [Exp. #108.]

ATARI

R.A.M. Atari User Group Of Ventura County. Meetings: 3rd Wed., 7:30 pm, Write: PO Box 112, Camarillo, CA 93011. Call: Tim, (805)389-0059. [Exp. #110.]

South Bay Atari Computer Enthusiasts (SPACE). Meetings: 2nd Tues., 7:30 pm, Lomita VFW Hall, 1865 W. Lomita Blvd. Active in all user interests since 1981. Call: (310)375-4839 (10am–10pm). [Exp. #112.]

COMMODORE

C128 West Commodore 128 User Group. Meetings: 3rd Wed., 18645 Arrow Highway, Rec. room. Free membership. Call: John, (818)331-1589; BBS, (714)598-1755 FidoNet. [Exp. #112.]

C-TUG (Commodore Technical User Group). Two meetings: 2nd Thurs., 2:00 pm, 2233 N. Tustin Ave., Orange, and 4th Sun., Seniro Citizen Center, 170 S. Olive. Speakers, demos, help with any Commodore and Amiga questions. Call: Lou Palush, (714)532-1802. [Exp. #109.]

South Bay Commodore Users Group. Meetings: 3rd Thurs., 7:00 pm, SEC Redondo Generating Station, 1100 Harbor Dr. (across from King Yacht Harbor). Support for 64/128 computers. Open to all users of Commodore Computer equipment and those who would like to receive or exchange information on programs, applications, or hardware. Call: (310)324-8357. [Exp. # 112.]

Southern California Commodore User Group. Meetings: 3rd Wed., 7:00 pm, Church of the Nazarine Christian School, Rm. 18, 15000 Studebaker Ave., Norwalk. Supports C64 & 128 models. Call: Bill Davies, (310)599-1913. [Exp. #112.]

CORELDRAW

Association Of Corel Artists And Designers, Long Beach/Orange County Chapter. Meetings: 1st Tues., Farmers and Merchants Bank, 12535 Seal Beach Blvd., Rossmoor. National organization that provides support for CorelDraw and its associated programs. Call: Ken Wong, (310)835-6000 or (714)821-5378. [Exp. #111.]

Corel (ACAD) User Group. Meetings: 2nd Tues., 7:00 pm, Glendale Federal Bank Building, 401 N. Blvd. Product demos, Q&A. Call: Art, (213)935-1958. [Exp. #111.]

Santa Monica Corel Users. Meetings: 2nd Mon., 7:00 pm, Guest Quarters Suite Hotel, 1707 4th St., Santa Monica. Call: John Youngman, (310)399-3437. [Exp. #113.]

dBASE

LA FoxPro User Group. Meetings: 3rd Tues., 7:30 pm. All levels welcome. Call: Chuck, (310)539-9439. [Exp. #109.]

DESKTOP PUBLISHING

Southern California Ventura Publisher User Group (SC-VPUG). Meetings: Last Tues., 7:00 pm, 401 N. Brand, Glendale, Glendale Federal Bank Building. Product demos, Q&As, library resources. Call: (818)955-5830. [Exp. #109.]

EPSON

Epson UG/Orange County. Meetings: 3rd Sat, 10:00 am, 2151 Michelson near JW Airport, Irvine. QX, PX, CP/M, VALDOCS—support, tech, periodical & disk library, and parts. Call: (714)893-3305 [Exp. #110.]

IBM & COMPATIBLES

Aldus PC SIG. Meetings: 4th Thurs., 7:00 pm, Graphix Zone, 38 Corporate Park Circle, #100, Irvine. Call: Rick Tuning, (714)549-7352. [Exp. #111.]

Coast IBM PC User Group. Meetings: Last Sat., 9:00 am, Science Hall, Orange Coast College, Costa Mesa. Speakers, BBS, software library, newsletter, and SIGs. Everyone welcome. Call: (714)843-2048. [Exp. #112.]

Long Beach IBM PC And Compatibles User Group. Meetings: 3rd Wed, 7:00 pm, Masonic Temple, 1220 E. Market St., Long Beach. Call: Jim Wells, (310)439-7114. [Exp. #113.]

Los Angeles Computer Society. Meetings: 2nd Tues., 7:00 pm, Culver City High School Cafeteria. Live presentations and giveaways. Meetings are free. Call: (310)473-6668. [Exp. #113.]

NOCCC Business & Spreadsheets SIG. Meetings: 1st Sun., 11:00 am, Chapman College, City of Orange. One of 22 SIGs. Call: (714)998-8080. BBS: (714)962-1857. [Exp. #108.]

Orange County IBM-PC Users Group. Meetings: 2nd Tues., 7:00 pm, Computer Learning Center, 1240 S. State College Blvd., Anaheim. Speakers, software, newsletter. Open to public, all welcome. Call: (714)990-0580. [Exp. #109.]

Pasadena IBM User Group. Meetings: 3rd Wed., 7:00 pm, 2184 N. Lake Ave., Altadena. Speakers on hardware/software, SIGs, library, newsletter, and BBS. Call: Steve Bass, (818)791-1300. [Exp. #113.]

Public Domain User Group—Los Angeles. PD software for IBM, Commodore, and CPM computers. All the latest versions. [Exp.#113]

San Bernardino Personal Computer User Group. Meetings: Last Wed., 7:00 pm, CSU, San Bernardino, University Hall, Rm. 52. Just starting so need input on meeting topics and services desired. Call: Arthur Saltzman, (909)880-5755. [Exp. #110.]

San Gabriel Valley/Inland Empire User Group (CHOMP). Meetings: 4th Thurs., 7:30 pm, Harvey Mudd College. Call: Eric Haakenson, (818)308-6025. [Exp. #113.]

Thousand Oaks Personal Computer Club (TOPCC). Meetings: 4th Thurs., 6:30 pm, Goebel Senior Adult Center, 1385 E. Janss Rd., Thousand Oaks. Call: (805)495-8325. [Exp. #113.]

TUG-NET. Meetings: 1st, 2nd & 3rd Thurs., 7:00 pm, Tektronix Corp., 21300 Erwin St., Woodland Hills. Enter through back door of building, press buzzer. Call: (818)249-1629. [Exp. #110.]

Valley Computer Club. Meetings: 1st Wed., 7:00 pm, Burbank Board of Realtors Bldg., 2006 W. Magnolia, Burbank. BBS, PD library, SIGs, newsletter. All welcome. Call: Wes Arnold, (213)221-4433; or Grayce Hruda, (818)842-3707. [Exp. #111.]

Valley IBM/Compatibles User Group (VICUG). Meetings: 4th Fri., 7:00 pm, Van Nuys State Office Bldg., 6150 Van Nuys Blvd. Membership fee $25/yr. or $3 at the door. Call: Harry Tischler, (818)997-1470. [Exp. #113.]

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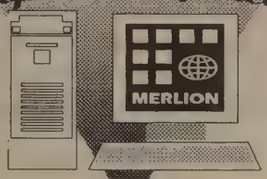

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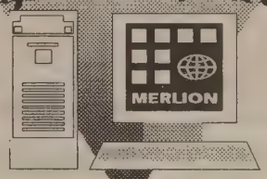

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USER GROUPS

K-MAN

Southern California KnowledgeMan User Group. Meetings: 1st Wed., 7:00 pm, Honda North America, Bldg. 300, 700 Van Ness Ave., Torrance. Call: (213)662-9910. [Exp. #108.]

MACINTOSH

The American Film Institute Mac User Group (AFIMUG). Meetings: 2nd Mon., Apple Lab, AFI, Hollywood. TV, film, and video. Call: Dave Chadderdon, (213)856-7743. [Exp. #109.]

Los Angeles Macintosh Group (LAMG). Meetings: 3rd Thurs., 7:30 pm, Dept. of Water & Power, 111 N. Hope St. So. Cal's largest all-Mac user group meetings, monthly magazine, classes, PD software, and more. Call: (310)278-LAMG. [Exp. #109.]

Orange Apple Computer Club, Macintosh User Group. Meetings: 1st Sat., 9:00 am, Chemistry Lab, Orange Coast College. Presentations and club disks. Call: (714)897-8784. [Exp. #112.]

Original Apple Corps, Macintosh User Group. Meetings: 2nd Sun. Support for beginners through experts. Write: PO Box 90065, Los Angeles, CA 90009. Call: Fred Duffy, (310)475-8400. BBS: (310)454-4660. [Exp. #110.]

San Gabriel Valley Mac User Group. Meetings: 1st Thurs., 7:30 pm, Pasadena Central Library Aud., 285 E. Walnut. Call: (213)684-ICON. [Exp. #111.]

South Bay Apple Macintosh User Group. Meetings: Last Wed., 7:30 pm, Pacific Elementary School, 1214 Pacific Ave., Manhattan Beach. Call: (310)644-3315. [Exp. #109.]

Whittier Area Mac User Group. Meetings: 2nd Sat., 10:00 am, Christian Family Friendship, 11209 First Ave., Whittier. Call: (310)947-2447. [Exp. #111.]

OS/2

LA OS/2 User Group. Meetings: 3rd Thur., 6:30 pm, IBM, 21041 Burbank Blvd., Woodland Hills. Call: Paul Duncanson, (805)584-8732. [Exp. #108.]

West LA OS/2 User Group. Meetings: 1st Wed., 7:30 pm, IBM, 2525 Colorado Place, Santa Monica. Catering to the technical needs of the corporate community. Call: Tracy Ragan, (310)285-3155. [Exp. #112.]

PROGRAMMING LANGUAGES

APL User Group—SoCal SIGAPL. Meetings: 2nd Wed., Los Angeles City College. Membership includes newsletter. Call: G. Smith, (213)560-2174. [Exp. #109.]

Forth Interest Group, Los Angeles Chapter. Meetings: 4th Sat., 10:00 am, Joslyn Center, 339 Sheldon St., El Segundo. Discussions, presentations, and tutorials include Forth, C, J, smalltalk, C++, OOP, hardware, algorithms, and operating systems. Call: John LuValle, (818)797-1820. [Exp. #109.]

SGML

SGML (Signal Generated Markup Language) User Group, Southern California Chapter. Discussions, presentations, tutorials, networking, and educational forums applying to SGML. Call: Roger Waston, (310)337-0309. [Exp. #112.]

TEXAS INSTRUMENTS

TI/944A Home Computer User Group. Meetings: 2nd Mon., 7:00 pm, Pomona First Federal, 9090 Central Ave., Montclair. Monthly newsletter, demos, and fairware. Call: (714)627-3403. [Exp. #110.]

UGOC. Meetings: 2nd Mon., Fidelity Federal, 13820 Seal Beach Blvd. Call: John Bolda, (310)421-1827. [Exp. #113.]

THEOS

THEOS User Group. Call: Fred Bellemy, (805)965-0265. [Exp. #108.]

VIDEO TOASTER

Digital Video Forum. Meetings: 3rd Wed., 6:00 pm, Pacific Video Products, 1100 Gene Autry Way, Anaheim. The Video Toaster and associated devices and software is the primary interest. Broad focus of group is the rapidly evolving world of Video/Graphics. Call: Scott Davis, (714)647-5822. [Exp. #112.]

VIRTUAL REALITY

Virtual Reality Special Interest Group (VRSIG). Meetings: The Electronic Cafe, 1649 18th St., Santa Monica. Call: Dave Blackburn, (310)545-0369. [Exp. #110.]

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RESOURCES

Calendar Of Events continued

continued from page 68

Auditorium. Richard James Corp. Call: 1-800-433-7469.

June 6–9 BG96 Dreams Vs. Reality—The 1993 Burton Group Conference On Network Computing. Pebble Beach. The Burton Group. Call: 1-800-TBG-9924.

June 10–11 The Macintosh Survival Course. Burbank. Data-Tech Institute. Call: (201)478-5400.

June 11–12 MacFair LA '93. Burbank Convention Center. LAMG. Call: (310)278-LAMG.

June 12 Computer Show & Sale. CSUN, North Campus. Richard James Corp. Call: 1-800-433-7469.

June 12–13 CorelDraw User Conference. Burbank. Association of Corel Artists & Designers. Call: (818)563-ACAD.

June 14–15 Outsourcing Conference. San Francisco. DCI. Call: (508)470-3880.

June 14–17 Electronic Messaging '93 Conference. Atlanta. EMA. Call: (703)875-8620.

June 14–17 Object World Expo. San Francisco. IDG World Expo Corp. Call: 1-800-225-4698.

June 19 Computer Show & Sale. Anaheim Stadium, indoors. Richard James Corp. Call: 1-800-433-7469.

June 23–26 Seybold Digital World Conference. Beverly Hills. Seybold Seminars. Call: (310)457-8551.

June 26–27 Computer Show. LA Fairgrounds, Pomona. Computer Marketplace. Call: 1-800-800-5600.

CLASSES, SEMINARS, AND WORKSHOPS

APRIL

April 17 Advanced Lotus Class. Monrovia. The Organizers. Call: (818)303-3311.

April 17 Word For Windows 2.0 Class. Monrovia. The Organizers. Call: (818)303-3311.

April 26 Lotus 1-2-3 For Windows Phase One Course. Burbank. Unique Learning Centers. Call: (818)843-8119.

April 26–31 Beginning FoxPro 2.0 Class. Culver City. Culver City Adult School. Call: April

April 27 Lotus 1-2-3 Phase One Course. Burbank. Unique Learning Centers. Call: (818)843-8119.(310)839-4361.

April 28 Virus Protection Class. Culver City. Culver City Adult School. Call: (310)839-4361.

April 28 WordPerfect Phase One Course. Burbank. Unique Learning Centers. Call: (818)843-8119.

April 29 Excel Phase One Course. Burbank. Unique Learning Centers. Call: (818)843-8119.

April 30 How To Market Your Computer Consulting Practice Seminar. Irvine. William Mooney Associates. Call: (213)321-9342.

April 30–May 1 Intro To PC Local Area Networks Course. Los Angeles. UCLA Extension Call: (310)206-1638.

MAY

May 1 Designing And Implementing A Wide Area Fiber Optic Network Course. Los Angeles. UCLA Extension. Call: (310)206-1638.

May 4 Windows Course. Burbank. Unique Learning Centers. Call: (818)843-8119.

May 4–June 8 Managing The Transition To NT Course. Los Angeles. UCLA Extension Call: (310)206-1638.

May 5 Microsoft Word 5.5 Phase One Course Burbank. Unique Learning Centers. Call (818)843-8119.

May 5–June 9 Beginning Word For Windows Class. Culver City. Culver City Adult School Call: (310)839-4361.

May 6 WordPerfect For Windows Phase One Course. Burbank. Unique Learning Centers Call: (818)843-8119.

May 7 WordPerfect Phase Two Course Burbank. Unique Learning Centers. Call (818)843-8119.

May 8 Intro To Client/Server And Database Technology Course. Los Angeles. UCLA Extension. Call: (310)206-1638.

May 11 WordPerfect Phase One Course Burbank. Unique Learning Centers. Call (818)843-8119.

May 12 Lotus 1-2-3 Phase Two Course Burbank. Unique Learning Centers. Call (818)843-8119.

May 18 Excel Phase One Course. Burbank Unique Learning Centers. Call: (818)843-8119.

May 19 Lotus 1-2-3 Phase One Course Burbank. Unique Learning Centers. Call (818)843-8119.

May 20 WordPerfect Phase Two Course Burbank. Unique Learning Centers. Call (818)843-8119.

May 21 Word For Windows Phase One Course. Burbank. Unique Learning Centers Call: (818)843-8119.

May 22 How To Start & Build A Full-Time Or Part-Time Profitable Computer Consulting Practice Seminar. Irvine. William Mooney Associates. Call: (213)321-9342.

May 27 Desktop Publishing Design Seminar. San Diego. Mavis & Moore. Call: (313)761-5210.

June 9 Desktop Publishing Design Seminar. Anaheim. Mavis & Moore. Call: (313)761-5210.

June 10 Desktop Publishing Design Seminar. Los Angeles. Mavis & Moore. Call: (313)761-5210.

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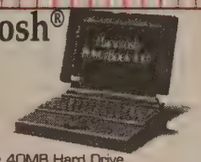

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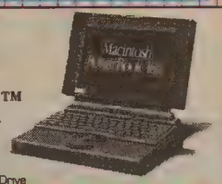

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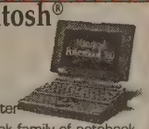

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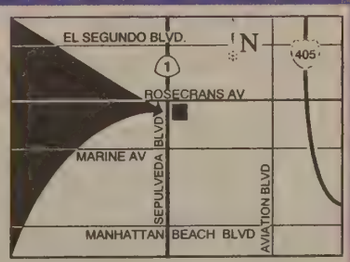

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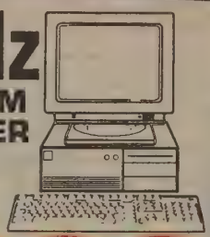

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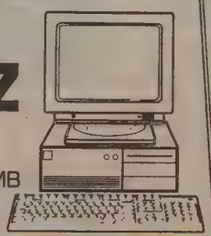

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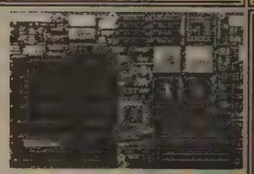

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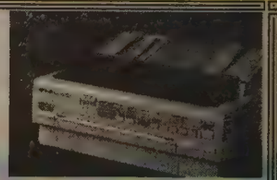

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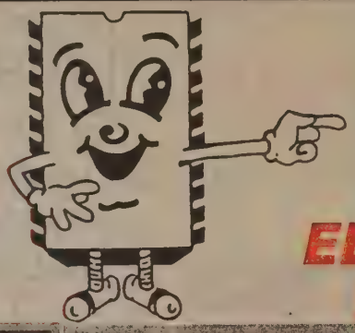

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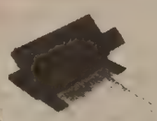

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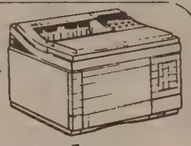

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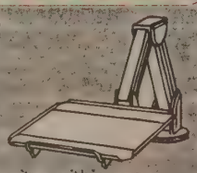

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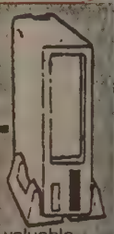

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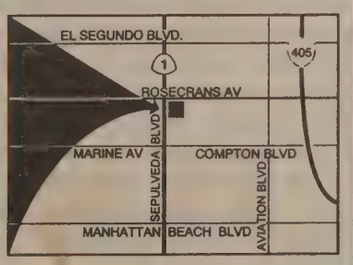

continued from page 18

MICROTIMES INDEX HITS ANOTHER RECORD HIGH

Fueled by renewed hopes that the latest economic rebound will be sustained, investors were net buyers of computer stocks during the month of March.

When the books were closed on the monthly trading session, here is how our industry fared: the *MicroTimes* Stock Index upticked 69.1 points, or 2.67%, to close at 4196.89—its highest level ever. In fact, the Staffing Index was the best performing indicator of all the indices in the accompanying charts. The Dow Jones Industrial Average, in comparison, rallied 1.19% last month to close at 3439.44, but not before hitting a new record high of 3478.34.

Symantec's stock swelled 37.2% and was our portfolio's largest percentage-gainer. Last month, SoundView Financial Group raised its investment rating for the technology concern to "long-term buy" from "hold." The brokerage firm cited optimism about improved earnings momentum and new products for the ratings upgrade. Separately, Symantec announced that is has expanded its line of network and communications software products with The Norton pcANYWHERE v1.0 for Windows. Shares of Symantec closed at $13.38.

In Canada, things were not nearly as rosy for Northern Telecom. The reason: The company said first-quarter earnings won't meet Wall Street's forecasts of about 47 cents a share. The earnings shortfall is due to increased spending on research and development, increased costs associated with international ventures, lower prices for the company's central office switching products in North America, and lower software revenues. The result: Northern Telecom's stock dropped $7.25 a share, or 16.5%, to $36.75. Northern Telecom was the largest dollar and percentage casualty of the lot last month.

IBM lost ground, as that concern dropped $3, or 5.5%, to close at $51.88. Last month, Merrill Lynch reduced its '93 estimated earnings for the company. Merrill Lynch had forecast $1.00 to $1.50 per share in '93, but the estimates were reduced to $.50 to $1.00 per share for the fiscal year.

Novell rallied 9.9% to close at $32. Last month, Alex Brown & Sons, Smith Barney, Oppenheimer, Dean Witter and First Boston all made positive comments on the future earnings growth of the networking concern. Separately, Novell and Digital Equipment Corp. announced an agreement to jointly develop, market, and support NetWare on Digital's fastest, RISC-based platform currently available. The partnership will make it possible for customers to realize increased performance of network services and applications on the NetWare environment. ■

EXCH	COMPANY	TICKER SYMBOL	CLOSING PRICE 03/04/93	CLOSING PRICE 04/01/93	NET CHANGE IN MONTH	PERCENT CHANGE IN MONTH	P/E RATIO	ANNUAL DIVIDEND RATE	ANNUAL DIVIDEND YIELD	ANNUAL HIGH	ANNUAL LOW
	SOFTWARE										
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OTC	Aldus	ALDC	19.00	18.75	-0.25	-1.32	41	0.00	0.00	24.50	10.25
OTC	Autodesk	ACAD	45.50	43.63	-1.88	-4.12	25	0.48	1.10	56.50	27.75
OTC	Borland	BORL	21.50	21.25	-0.25	-1.16	–	0.00	0.00	55.25	17.50
OTC	Informix	IFMX	34.50	33.50	-1.00	-2.90	20	0.00	0.00	42.00	12.13
OTC	Lotus	LOTS	26.13	25.63	-0.50	-1.91	14	0.00	0.00	35.50	14.75
OTC	Microsoft	MSFT	83.75	93.00	9.25	11.04	33	0.00	0.00	95.00	65.50
OTC	Novell (H)	NOVL	29.13	32.00	2.88	9.87	36	0.00	0.00	35.25	22.50
OTC	Oracle (H)	ORCL	33.25	36.88	3.63	10.90	53	0.00	0.00	37.50	12.00
OTC	Software Publishing	SPCO	13.13	13.75	0.63	4.76	–	0.00	0.00	20.25	6.75
OTC	Symantec	SYMC	9.75	13.38	3.63	37.18	–	0.00	0.00	47.50	5.88
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NYS	Advanced Micro Devices (H)	AMD	22.63	22.63	0.00	0.00	9	0.00	0.00	24.50	7.38
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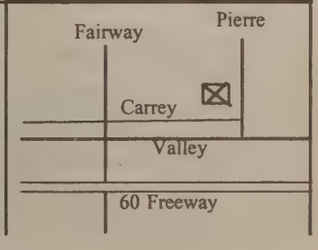

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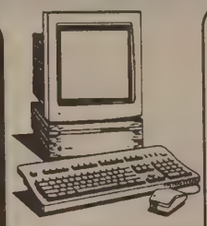

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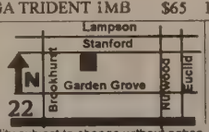

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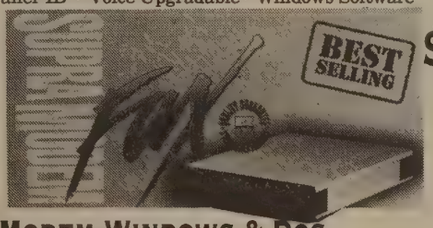

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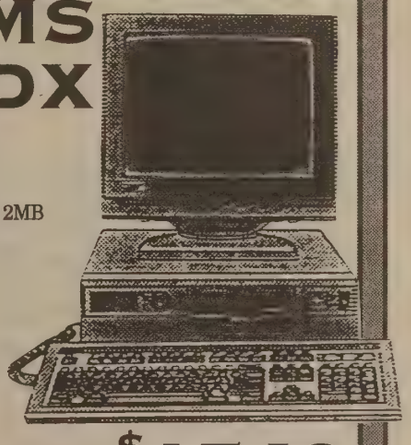

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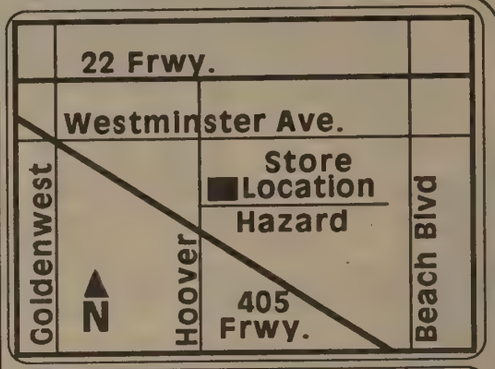

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continued from page 64

withdraw the enchanted fruit, Excalibanana, from the stone where it is embedded. But before you can do any of that, you must figure out how to get a farmer's pig out of a latrine it has fallen into.

Graphics and Animation: 9
Sound: 8
User Interface: 9
Overall Value: 9

The game's user interface is a delight. You move from scene to scene by clicking the desired direction on a compass rose. You can construct your text inputs by simply clicking to select nouns, verbs, and modifiers from lists that automatically reflect what's currently available. When you converse with a character, you only need to select a canned phrase from a menu. Various events trigger animated sequences, or even games within the game (ever play "Concentration" against a dwarf?).

Don't forget to pick up and read any newspapers you find on a dungeon floor. The classified ads are usually a hoot:

> **Help Wanted - Merry Men**
> **Established outlaw seeks support group. Successful candidates will have experience sleeping in forest as well as hands-on experience in wealth redistribution programs.**

The program is installed from four 3.5" high-density disks, and its 121 files occupy over 7MB of hard disk space. The 36-page user manual includes helpful hints and a complete vocabulary of game commands, but most adventurers will need to order the $9.95 hint book to complete the quest. (Legend Entertainment, 14200 Park Meadow Dr., Chantilly, VA 22021. 703/222-8500 or 1-800-245-7744)

GREG LEMOND'S BICYCLE ADVENTURE

Designed By: Minoo Saboori and Matthew London
Published By: Eden Interactive
For: MS-DOS (640K, VGA graphics, supports mouse and popular audio cards)
List Price: $79.99

Graphics and Animation: 9
Sound: 9
User Interface: 8
Overall Value: 9

One of the prettiest metaphors in the history of technology was Steve Jobs' description of the personal computer as a bicycle for the mind. A bicycle uses mechanical technology to amplify and extend the power of human muscles. At their best, computers use electronic technology to amplify and extend the power of the human brain. Bicycle Adventure uses interactive computer technology to teach you an enormous amount of information about bicycles and the sport of cycling. Topics include: history, touring, racing, equipment, people, mountain biking, and environmental impact.

A recently rediscovered sketch by Leonardo da Vinci, circa 1493 shows a surprisingly advanced concept for a bicycle, but the idea of a human-powered vehicle took centuries to catch on, due to the aristocratic preference for horses and the poor state of urban streets and country roads. The sport of cycling eventually became a national passion in many European countries.

The program uses a licensed version of Knowledge Adventure's excellent interactive book engine. The screen is divided into a graphic and animation window, a panel of

control buttons, a time line, and a world globe that you can rotate or zoom. There are a number of short film clips that show off Knowledge Adventure's impressive proprietary video compression technology.

I was surprised by a few omissions in the program. There is no mention of Orville and Wilbur Wright, who began as bicycle mechanics in Dayton, Ohio. What the bicycle taught them about strength, lightness, and mechanical reliability they put to good use in designing the first airplanes. There was also no mention of the bicycle in war (between 1920 and 1940, several European armies formed bicycle reconnaissance battalions, one of the oddest footnotes to military history).

Bicycle Adventure is installed from compressed files on five high-density 3.5" disks (other formats are available). You need at least 8MB of free hard disk space to install the program, although it takes up slightly less than this amount after everything is decompressed and configured.

A Macintosh version is under development as well as expanded CD-ROM versions for both platforms.

Anyone who enjoys cycling should enjoy this program. It might even inspire a few sedentary computer-potatoes to get out and ride. (Eden Interactive, Inc., 1022 Natoma St., San Francisco, CA 94103. 1-800-743-3360)

PC SOFTWARE REVIEWS

ENERGIZER BUNNY: SCREEN SAVER FOR WINDOWS

Published By: PC Dynamics
List Price: $24.95
Reviewed By: Woody Liswood

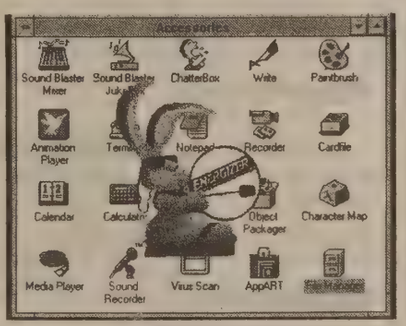
TV has come to Windows. If you like those Energizer Battery commercials, with the Energizer Bunny beating a drum across different scenes, you'll love this screen saver.

This software package offers a variety of bunnies—in size, appearance, action (such as the bunny parachuting or snorkeling) as well as many ways of just beating his or her way across your screen and various accompanying scenes.

There is no documentation. Just put the disk in, run setup from the file manager, and double click on the bunny icon to get into the program. From there, you can have it load automatically, and set bunny types, bunny scenes, and bunny sounds you want, or randomize everything so that each time you are surprised. If you really can't stand a bunny all the time, PC Dynamics has included a nice fish tank, called Watery World, and a reasonable laser show.

If a bunny marching and beating across your screen is not enough, you can also choose bunny bitmaps to install as wallpaper.

If you don't have a sound board, the program comes with a shareware version of a sound driver which lets you play the sounds through your PC speaker. While the sound



quality of a PC's built-in speakers is generally poor when compared to sound boards, it does let you know what is going on. This sound drive will also let you play other sounds under Windows, which you might not have tried if you didn't have a sound board and speakers.

This is a nifty little program, which might cause a few laughs. (PC Dynamics, Inc., 31332 Via Colinas, Ste. 102, Westlake Village, CA 91362. 818/889-1741)

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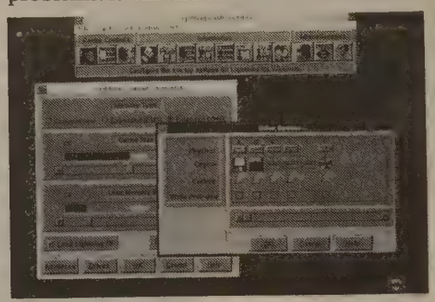
PRODUCT SPOTLIGHT

LIGHTNING FOR WINDOWS

Published By: Lucid Corp.
List Price: $129.95
Reviewed By: Woody Liswood

Lightning is a superfast disk cache program that has been around since the dark ages of microcomputers. If you haven't used a disk cache before, you should, since it really does speed things up, particularly databases which continually read and write to the disk. The more your particular program uses the disk, the more speed improvement the disk cache will give you.

Lightning for Windows worked fine running on Windows with MS-DOS 5.0 and a beta of MS-DOS 6.0. I've used it with two differently compressed disks and had no problems. It will also cache a CD-ROM drive.



This can greatly improve your multimedia system.

This program installs automatically, removing other disk caching programs you might be using, and adds a program group containing icons for the special features of Lightning.

A special setup icon allows you to fine tune Lightning for Windows. You can change options such as type of memory used, cache size, the last drive you wish to cache, the sector read ahead count, the write delay for delayed writes, turn on or off background writing, as well as flushing or locking any drive which has a cache buffer activated.

Another icon shows a bar graph of the disk space, and how much Lightning has increased disk accesses. Other icons show drive size and usage, memory usage by Windows, and monitors for the drives, memory, resources, and Lightning. The monitors are icons which have either a gauge or other graphic to show the amount of space, memory, etc. currently used by Windows.

Overall, I like Lightning for Windows much better than Smartdrv—the Microsoft supplied disk cache with MS-DOS 5.0. Since it also works with my beta DOS 6.0, I'm hooked. (Lucid Corp., 101 W. Renner Rd., Suite 450, Dallas, TX 75082. 214/994-8100)

STAR TREK—THE SCREEN SAVER FOR WINDOWS

Published By: Berkeley Systems
List Price: $59.95
Reviewed By: Woody Liswood

I am a great fan of screen savers, not because the modern monitor needs them, but because they add a variety of images to my life. And, since I am often working with confidential information, a screen saver can easily hide this data, even requiring a password, when I am called away from my desk.

Star Trek, The Screen Saver, from Berkeley Systems uses the After Dark screen saver image to provide a wide variety of animated images from the original Star Trek television show.

These images also have the associated sound files. On my multimedia Windows computer, it sounds great. On my office computer at work using the built-in speaker, the sound is only OK.

Installation to Windows is normal. It takes about 3.5MB to install everything, or you can customize the install to only do those things you want.

The preview option and password options are the same as in After Dark. I don't like their preview option because it leaves a preview and adjustment dialog box in the center of the screen, right in the middle of the images you are trying to preview.

The multimedia setup I use is the MicroVision ProAudio Spectrum. Star Trek worked with my setup immediately with no adjustments.

There are a variety of modules, such as tribbles, Brain Cells, a Final Exam which contains questions about Star Trek, a Medical Sick Bay Display, and Kirk on the Bridge. Also, as you go along, Spock might transport into any screen, walk around, and generally use the tricorder trying to figure out what is going on.

I love it. Just don't get caught by the Tholian Web. Live Long and Prosper. (Berkeley Systems, Inc., 2095 Rose St., Berkeley, CA 94709. 510/540-5535)

OUTSIDE IN FOR WINDOWS 2.0

Published By: Systems Compatibility
List Price: $89 (Upgrade from v1.0 is free; Network and DOS versions also available)
Reviewed By: Woody Liswood

One of the interesting problems we all face in the world of microcomputers is getting information from one application into another. In the DOS world, there have been a variety of utility programs introduced over the years that convert from one format to another.

Outside In for Windows takes information from a wide variety of file formats and lets you

Continued on page 138

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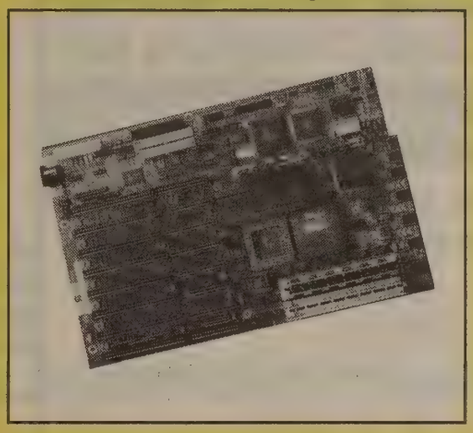

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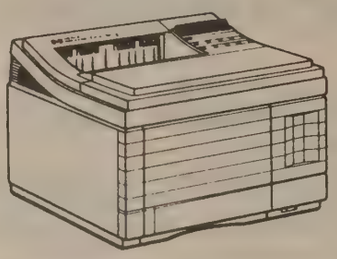

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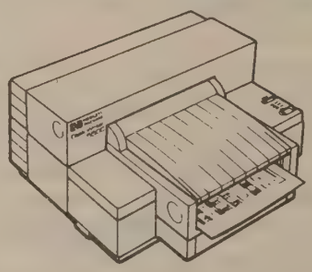

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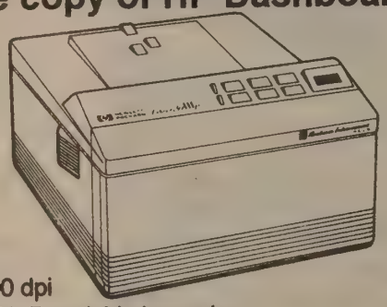

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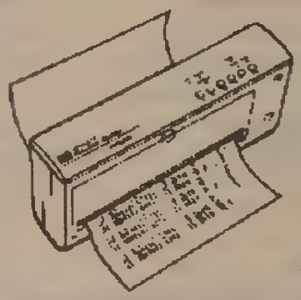

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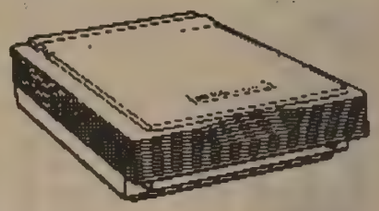

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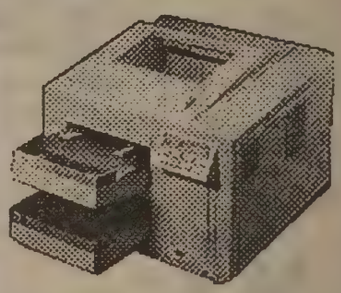

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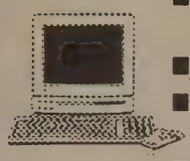

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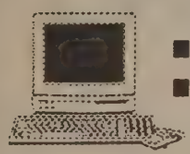

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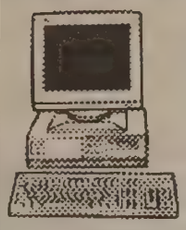

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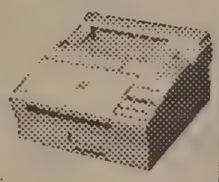

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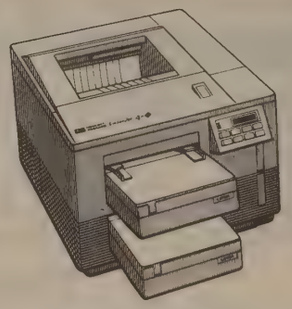

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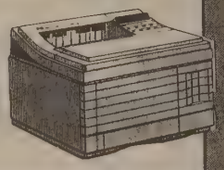

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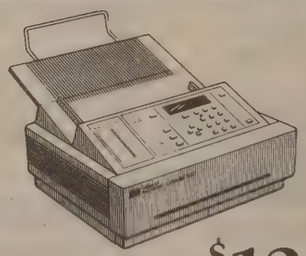

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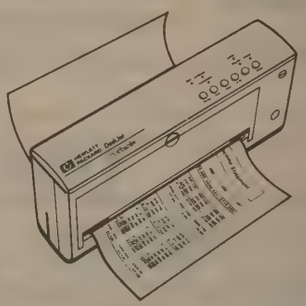

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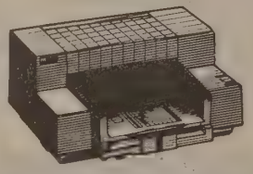

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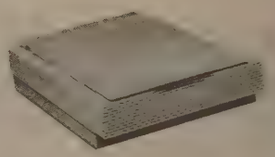

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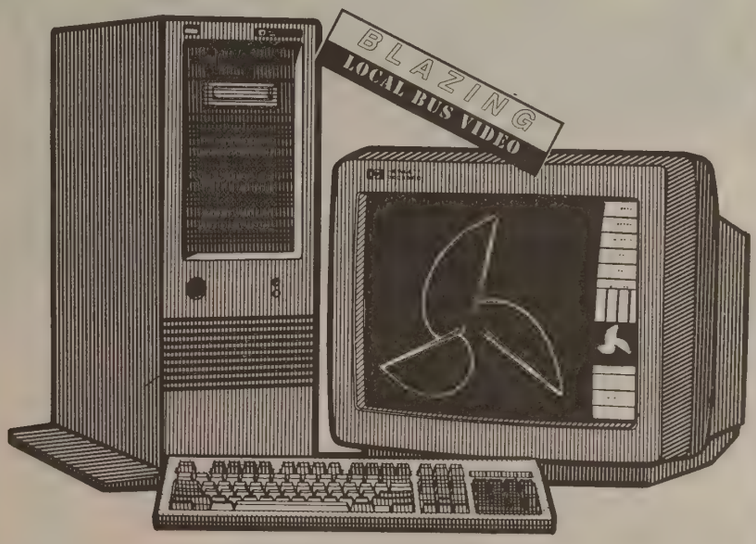

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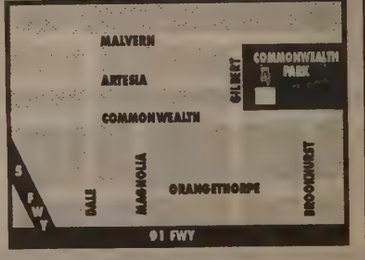

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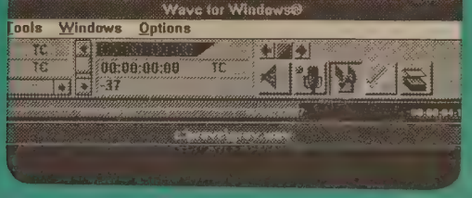
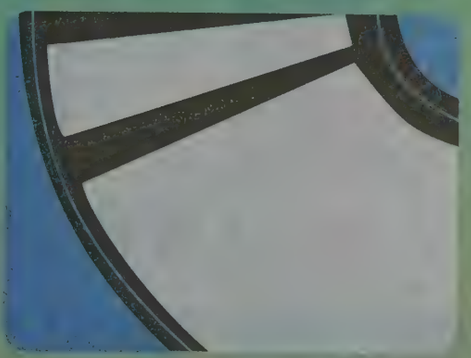
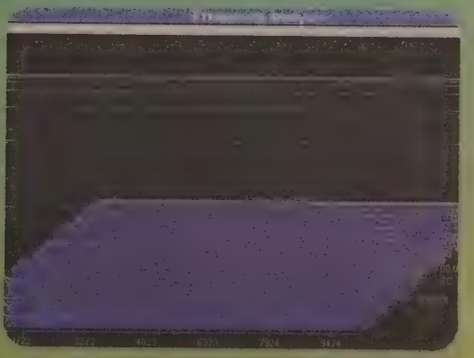






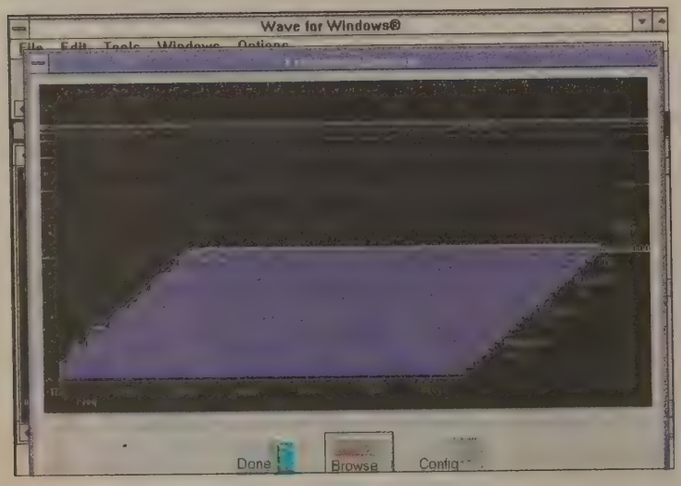
This month: Windows in the recording studio; Amiga at Warner Bros.; a look at current markets and titles in Multimedia 101.

Turtle Beach Multimedia Sound Card Enters The Studio

A Top Studio Guitarist Finds Real Uses For Multimedia

BY RICH GRACE

For the last few years, we've witnessed a constant stream of hype about multimedia. Most of it has neither clarified the definitions of what is meant by multimedia nor brought with it a range of mass-market products promised. It's refreshing, therefore, to finally see some applications for the "multimedia technology" which clearly show off new and powerful ways to use your computer. We'll be looking at the experiences of a studio guitarist in Southern California as he explores Turtle Beach's MultiSound, one of the first PC-based multimedia cards to combine real power with a reasonable cost.



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Rich Grace is a free-lance and technical writer, and an enthusiastic user of PC, Mac, and Amiga platforms. He lives in Orange County. He can be reached on MCI Mail ID 484-6217.

THE USER

Rick White is a craftsman in his field, a solid, dependable music professional with a virtuosi command of his instrument. He's been involved in the commercial production of music and in live performance for thirty years. His credits are diverse and very numerous, with work done in blues, pop, rock n' roll, and jazz for artists such as Andy Williams, Sonny & Cher, Tracey Ullman, and many others. A compact, young-looking man in his mid-forties, Mr. White has lengthy experience with almost every music synthesizer and computer-based sound product in the market. He's worked extensively with both Macintosh and PC computers for producing music. Normally, White stresses reliability over flashy bells and whistles, and has

THE AMIGA OFFERS a low-cost solution with powerful capabilities to animators. Not only can the Amiga handle black-and-white animation pencil tests, but it can also do full-screen, full-color, real-time animation, if necessary.

ENTER COMPUTERS

At Warner Bros., computers were first used to color in models. Prior to that, coloring directions were generally conveyed in writing, but the results were not always as expected. Now, the hand-drawn models are scanned into a Macintosh, where an ink-and-paint program called Linker is used to color them in. These colored models are printed out on a high-resolution Kodak dye supplemation color printer.

Linker is also used for pencil tests. These are short animated sequences similar in concept to page-flipping books where you rapidly flip through the pages to see a rough animation.

With all this information, the animators paint the actual cels that are used to make the cartoon. It takes at least sixteen weeks before Warner Bros. receives the animators' work back; only after all this can the film be edited and the music, sound effects, and dialogue added.

ENTER AMIGA

Mills recalls his experience using the Macintoshes already in-house: "It was a little slow for me, and they're using Quadra machines down there. This is still not as fast as I'd like it to be."

The head of the computer department, knowing Mills was very familiar with the Amiga, asked him to "take him out and show him an Amiga." Soon, they were both at a local Amiga dealer, but the dealer didn't have any 4000s there. Mills had to settle for demonstrating the Amiga using a 2000 with an '030 accelerator—fast but slower than a 4000. Even under these conditions, the computer department head was very impressed with the Amiga's fast screen refreshes. Later, after a meeting with representatives from Commodore, a brand new Amiga 4000 workstation was installed in Mills' office.

The workstation consists of an Amiga 4000 with 18MB of RAM on the motherboard, a 64MB ProRAM board from Progressive Peripherals, Impulse's Firecracker 24-bit display board, an Ethernet card, an IVS SCSI control card, a 400MB SCSI hard drive, a Syquest removable cartridge device, a 17" IDEK monitor, and a Commodore 1960 multiscan monitor. The IDEK is used as the main Amiga display and the 1960 is connected to the Firecracker.

For the most part, Mills uses the new AGA display modes for image processing, but relies on the Firecracker output to get the real 24-bit story. Though the Amiga's HAM8 display mode allows 256,000 simultaneous on-screen colors, it can still exhibit color banding and is just not as crisp as a true 24-bit display.

Mills' preference for the Amiga over the Macintosh is mainly a speed issue. "[It's because of] some of the manipulation that I'm doing with brushes and stuff like that. All the images, all the logos are brushes, and I can do these things so fast. It's that, and because I know it, that they decided to do it with the Amiga" says Mills. "And," he adds, "because of the cost"—although his setup cost about $11,000, it was still cheaper than a comparably equipped Macintosh workstation.

He emphasizes, however, that the Amiga is not replacing the Mac, it is being integrated into the Warner Bros. system. Because Warner Bros. is a multi-platform shop, it was imperative that the Amiga be able to integrate seamlessly. (The studio is also experimenting with Silicon Graphics Iris machines.) Fortunately, many Amiga programs like GVP's ImageFX, which Mills uses almost exclusively, support multiple-platform file formats. This allows you to generate an image on a Mac or a Silicon Graphics machine and then use the same file on an Amiga.

Initially, he had hoped to use the Syquest removable drive as a transfer medium, but because of various reasons this has not been implemented yet. For now, high-density floppy disks seem to be sufficient. However, once the computer department relocates—they are in the process of moving to the same building—the Amiga will be connected to the Macs using a local area network. Networks are becoming common, if not a necessity, in multi-platform environments.

Mills sees a great benefit having a computer in his office and therefore more accessible to the artists working on a project. He was also able to get the producer to approve things based solely on the computer display—something that had not been done in the past.

AMIGA IN ACTION

Mills first used the Amiga in an animation in a *Tiny Toon* episode. The story involved one of the characters flying a duck-bill-shaped spacecraft. The animators balked when they were initially presented with the standard storyboard/model information—they really didn't know what was wanted.

Mills used Impulse's 3-D rendering program Imagine to generate each frame of the sequence, so the animators only had to trace the frames and make minor modifications. (He adds that because the computer animation was "too perfect," they had to tweak it a little to give it more of a cartoon-like feel.)

The Amiga will also be used to generate the title cards for the upcoming *Animaniacs* series. Title cards are static images that appear at the beginning of a cartoon and include the title and the directing and writing credits. Traditionally, these are hand painted, and cost hundreds of thousands of dollars—pretty expensive for something that will only stay on the screen for a few seconds.

This being the case, the producer of Animaniacs did not want to use them, suggesting perhaps simple text over a colored background. Mills knew that it would be better if they had something with a little more pizazz. So, using ImageFX to do the drawings and Soft-Logik's Art Expression to do the text, he created some demo title cards on the Amiga. Where actual characters were required, he had them scanned and then brought over to the Amiga. ImageFX includes among its many 24-bit image processing capabilities, powerful painting tools. By just adding different titling, these images could be used more than once. Because the images were going to film, they were done at extremely high resolution, 2048 x 1544. ImageFX handled this resolution with no problems.

Says Mills, "When I first walked in with (the demo title cards), he looked at it and he says, 'No no no, we can't do this. This cost us way too much money on *Tiny Toons*.'" Mills explained to the producer that these were not

been using a DOS-based sequencer program for a few years, eschewing the more complex, expensive Macintosh solutions.

THE PRODUCT

Until recently, White has not been satisfied with the commercial PC-based multimedia products available to him. Most of the hardware and software products lack the flexibility and professional features he's looking for. Turtle Beach Systems has stepped forward with a unique product which offers remarkable power and flexibility with a fairly reasonable price. The product is called MultiSound, a high-resolution 16-bit multimedia sound card. multisound, however, is not merely a sound card in the manner of Sound Blaster or Ad Lib. It's a fully Multimedia PC (MPC)-compliant hardware-software solution for those who wish to record music tracks in real time directly to their computer's hard disk, thus enabling powerful sound editing and manipulation capabilities beyond the reach of most competitive products, and replicating the features of music industry devices costing many thousands of dollars more. Let's view a brief summary of MultiSound's features:

- Full MPC-compatibility—thus, all Windows MPC software products will work with it
- Direct to Disk Recording
- Complete E-mu Proteus/1 XR synthesizer onboard with 4MB of ROM (read-only-memory)
- Motorola 56001 DSP (digital signal processor) chip, which ensures efficiency in most operations on even a 386SX system
- Thirty-two simultaneous MIDI voices
- 64x oversampling digital audio
- Wave for Windows Direct-to-Disk sound editing and recording software

The MultiSound package has a list price of $995—costing far more than the under-$300 competitors such as Pro Audio Spectrum and Sound Blaster Pro, and certainly beyond the means of anyone who simply wants CD-ROM connectivity and the ability to play sound files. (Note, however, that street prices are often considerably lower.) A lot of competition has appeared since the latest NAMM (National Association of Music Manufacturers) show. Considering what the card has to offer, the price point is remarkably reasonable. Why? What does MultiSound offer for such a seemingly high price?

MULTISOUND IN DEPTH

To begin with, the Proteus/1 XR synthesizer is one of the most popular professional-quality synths available. It's sold in a traditional hardware box for $1995 list. The Turtle Beach card, with the full software setup, completely replicates the Proteus/1 XR panel func-

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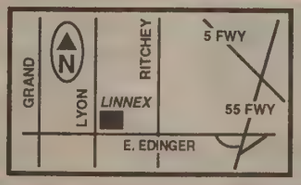

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tions on the Windows screen. Thus, computer control of a professional-quality synthesizer is now a reality.

The Proteus synth is known for the high quality of its preprogrammed sounds. Its 4MB of on-board ROM (eXtended ROM, the XR in the name) offers a bank of 384 preprogrammmed sounds for use by the musician. These sounds can be swapped freely, and custom sounds can be placed into memory by the musician for later use. The general MIDI standard specifies a standard memory location for all sounds residing in memory on popular synthesizers and sound cards. This standard means that compositions produced on a Sound Blaster can be played freely on other cards. The Proteus synth on the Turtle Beach card adheres to this standard.

The Motorola DSP chip assumes real significance when one realizes that non-coprocessed cards such as the Pro Audio Spectrum advertise the same capabilities as Turtle Beach Multisound (44.1kHz stereo direct-to-disk recording and sampling) but wind up choking on all but the very fastest PCs. The 32-bit 56001 processor is the same DSP chip used in the original NeXT computer, and the Motorola 56x is widely considered the most powerful DSP chip family available. On the Turtle Beach card, it relieves the CPU of the stressful tasks of processing the direct-to-disk recording of MIDI tracks and aids in the speedy editing of sounds and compositions. Even on White's 16MHz, 386SX system, performance is fully functional.

MultiSound card is a fully MPC-compliant hardware-software solution for those who wish to record music tracks in real-time directly to their computer's hard disk.

White was at the NAMM '93 convention in Anaheim, and picked up a powerful tip from a Turtle Beach rep: for robust performance on relatively slow systems, Windows users need to disable all background programs, such as Adobe Type Manager, After Dark, and anything else that occupies processor cycles in the background. He noticed a dramatic improvement in direct-to-disk recording performance after doing so. Thus, the power of the on-board DSP becomes readily apparent. Turtle Beach may be the only vendor in its field to offer this capability. White explains, "Obviously, I need to boost my throughput. The Turtle Beach documentation strongly recommends a 486 for best performance. So far, though, the card has performed very well on my system."

White defragments, or optimizes, his hard disk whenever he's about to do some work with the MultiSound card. Otherwise, throughput is so badly hampered that skips and jumps occur in the recording as the read-write heads skip over disk sectors to find the next recording segment. The Turtle Beach documentation is unequivocal on this point. Direct-to-disk requires large contiguous segments of the hard disk for efficient recording.

SAMPLING SNIPPETS

When we refer to "high-resolution" sound recording, we're simply referring to the sampling rate. PC sound cards offer a number of options for digital sampling and recording. The most powerful, and most demanding on system resources, is the 44.1Khz, 16-bit stereo standard—true CD-quality sound. Consider, also, that the Turtle Beach card completely bypasses the PC's

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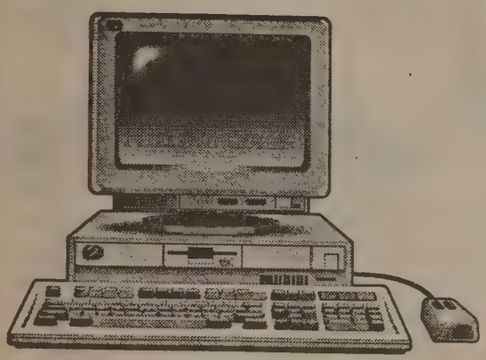

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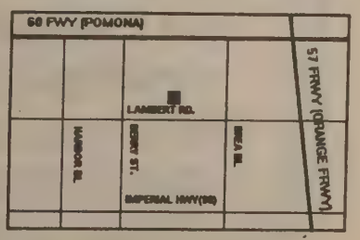

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memory during direct-to-disk recording. Why direct-to-disk? Despite the relatively low prices of semiconductor RAM, disk space is still cheaper (particularly considering the recent price drop of large hard disks). If you're sampling and recording at true CD-quality levels, one minute of sound occupies over 10MB of memory! Desktop computers cannot be expected to hold such vast amounts of RAM, at least for the near future. Even 16MB or 32MB RAM systems (which are becoming somewhat more common) are not adequate for such a task.

As most of you also already know, sampling simply refers to the rate at which a digital recording device converts an analog input (say, an acoustic guitar being plucked in front of a microphone) into digital data. Eight-bit sampling means that for each second of recording, the sound is being converted to digital data 256 times a second. It's the minimum acceptable level for sound quality in digital data, and usually doesn't sound very good. Sixteen-bit sampling offers 65,536 conversions per second—hence "high-resolution" sound. At higher frequencies, and higher resolutions, much greater amounts of data are generated, which must be written to the hard disk every second.

At the highest sampling rate (44.1kHz 16-bit stereo), 176K of data is being written to the disk every second! This kind of throughput places heavy demands on any small computer, which is why the 56001 DSP chip on the MultiSound card is so important. Turtle Beach also claims that its analog-to-digital converters (ADCs) are so well isolated and buffered from other circuitry that high-end audio can be generated without the microprocessor noise that results from other systems.

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THE SOFTWARE: WAVE FOR WINDOWS

Rick White has found the software bundled with the MultiSound card to be adequate for almost any task he's needed to perform. Wave for Windows is, for the most part, a solid, pro-level software package which enables recording and extensive manipulation of sound files in a variety of sampling rates and resolutions. Last year, you would have had to spend $15,000 for a good direct-to-disk recording device. Wave allows all the capabilities of such a device, with the ease of use of the Windows environment to boot. Direct-to-disk recording, in brief, means being able to edit music data directly on the hard drive with no loss of quality. The program *never actually uses the computer's RAM for editing* when you open sound files! Wave enables editing of sound files like a word processor, with full cutting-and-pasting features.

Turtle Beach calls its waveform editing functions "destructive editing," because changes to your waveforms on hard disk are irreversible once you make them—you're not using RAM as a buffer storage before the changes are saved into the sound file. Fortunately, an Undo Last Edit feature is available. All editing functions are handled by the DSP chip.

You can make adjustments to an entire sound file or just a small segment of it. You can change gain adjustments, employ a four-band parametric equalizer, apply muting to segments of a waveform; 3-D plots of wave-

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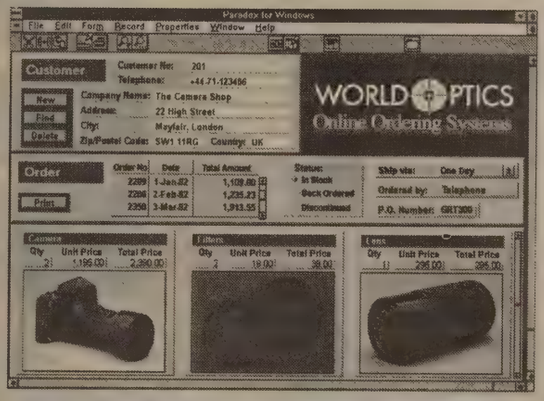

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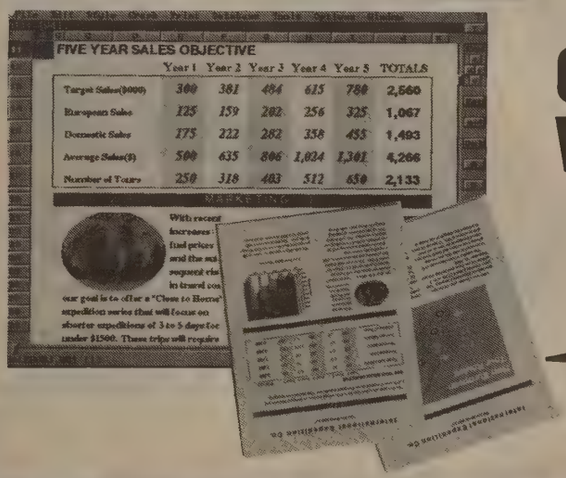
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forms can be generated with the Frequency Analysis feature, which has a powerful, specialized feature set of its own that includes a substantial number of controls and adjustments.

White has recorded acoustic guitar parts, using a microphone as his input device, and edited them using Wave for Windows. He then lays in the finished acoustic guitar track on an existing song, with precise control over placement, mixing, and almost any adjustment possible with digital sound editing. He's also using Wave to compile a DAT recording of many of his best studio recording dates and other gigs as a "musical resume" to send to prospective clients and others interested in his work. For that particular job, Wave's crossfade feature allows him to dovetail from one sound recording to the next in smooth fade-ins and fade-outs.

One of Wave's nicer features is its use of Windows' MDI (Multiple Document Interface) to edit and combine separate sound files. Four music documents can be open at once, and three direct-to-disk recordings can be combined into a fourth using Wave's Mix feature. All three recordings must be the same format and frequency: stereo or mono, 44.1kHz, and so on. White states: "The volumes of each recording can be adjusted, so that three stereo pairs can be combined much like a multitrack recorder—without loss or noise. The process is somewhat cumbersome and requires a little ingenuity, but it works!"

Also, he's found that if all three recordings are run at the same volume, particularly at higher levels, tremendous distortion can result. The way around this is to vary the decibel levels of the recordings. He's also found Wave's Invert feature a nice tool for taking an old mono sample and turning it around ("reversing the phase") to create a good pseudo-stereo sound from the thin-sounding mono original.

One major disappointment in Wave is its lack of provision for using MIDI events to trigger the playing of a sound file. This need is one for which no individual program or system has defined a solution, however. Overall, Wave for Windows replicates many of the key features of prohibitively expensive direct-to-disk devices without the exorbitant cost.

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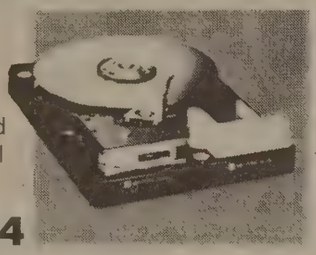

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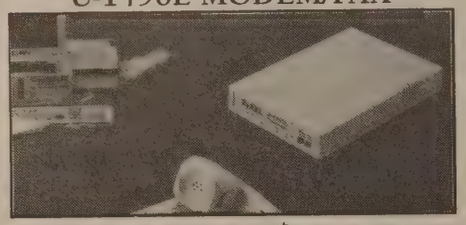

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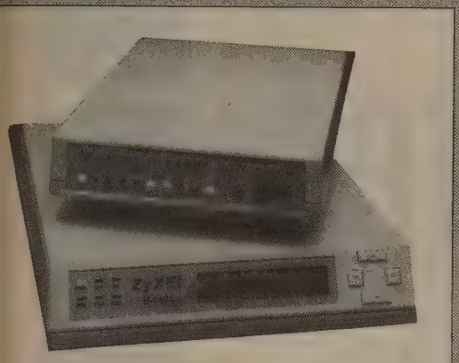

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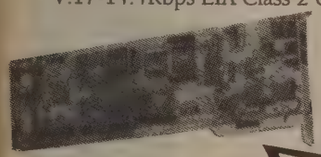

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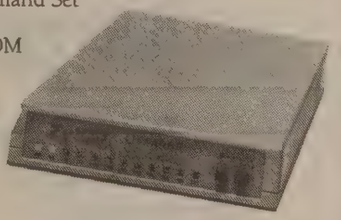

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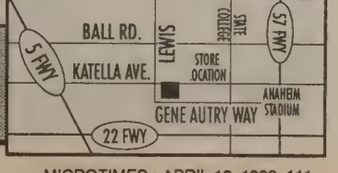

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Amiga Infiltrates Warner Bros.

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BY DOUGLAS J. NAKAKIHARA

A few months ago, I wrote about how the Commodore Amiga was being used at Walt Disney Pictures and Television. Well, the Amiga is having an impact at yet another major company—Warner Bros. Animation.

Warner Bros. is famous for the classic tales of Bugs Bunny, Daffy Duck, Elmer Fudd, Porky Pig, et al., but they are also responsible for such current ground-breaking animated shows as *Tiny Toons* and *Batman, the Animated Series.*

Rusty Mills is pioneering the use of the Amiga at Warner Bros. and sees great benefits in using the platform. An animation director at the company, Mills is responsible for controlling the visuals and the timing of the characters in his projects. "That's everything from the backgrounds the characters are working against, to the way the characters act, to how fast something is going to happen—everything like that," says Mills. Whenever possible, he is trying to use the computer to save time and money, while still meeting the high-quality standards of Warner Bros.

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MultiMedia & beyond

logue-only audio track is transferred to cassette tape.

Work on a storyboard also commences with the final script. The storyboard contains hand-drawn pictures of key frames in the cartoon, plus dialogue, timing, and other directorial remarks. Once the dialogue and storyboard are finished, Mills "slugs" the storyboard. Slugging is the process of determining exactly how long every action is going to take, adding blank space as necessary to allow enough time for the action. For example, it might take a character 2 feet of film to walk out the door. This "slug" must be indicated on the storyboard.

One frame from a 50-frame animation by Rusty Mills. Background generated using VistaPro 2.0.

Interestingly, animators use feet as a measure of time. A foot of film contains sixteen frames, and film is played back at a rate of twenty-four frames per second. So, for example, a portion of dialogue might be described as being 4 feet long—it requires sixty-four frames (4 feet x sixteen frames per foot) of animation and is 2.67 seconds long (sixty-four frames at twenty-four frames per second). As a result, the storyboard must show the length of each portion of dialogue in feet.

Once the storyboard has been slugged, an audio track with all of the slugs—pieces of old blank tape spliced into the original—can be made.

Based on the final audio track, an exposure sheet is created, explaining every single frame in the cartoon. That's nearly 29,000 frames for a twenty-minute animation!

The dialogue is broken down phonetically, frame by frame. There are also special "mouth codes," which correspond to pictures of the characters with their mouths in different positions. This provides a standardized way to indicate the shape of a mouth when a certain sound is spoken—necessary because the animators may not speak English. Without this, the cartoon might look like a English-dubbed Kung Fu movie.

The Warner Bros. artists must also draw example pictures, called models, of the characters, props (non-moving objects), and backgrounds. Since the people who will actually paint the animation are often located in a different country, it is important to give them as much information as possible. Models serve as examples to the animators to let them know what the character, prop, or background is supposed to look like. Most of these are black-and-white line art, but some must be colored to let the animators know the desired colors.

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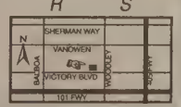

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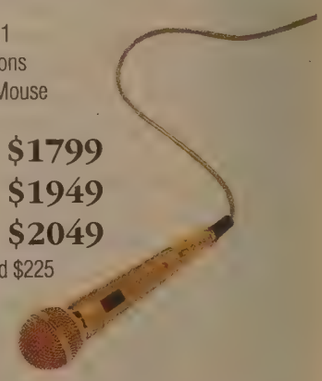

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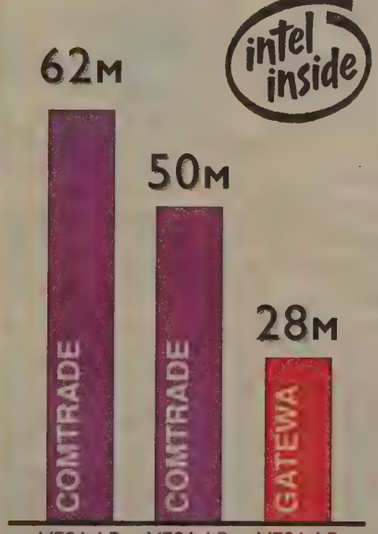

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paintings. Then the producer said, "These are going to take way too long." Mills further explained that each one was completed in about a half hour, causing the producer to become very excited. After some further discussions, Mills was given the green light and as he puts it, "at that point, the Amiga was sold!"

The Amiga is also being used to generate an animated title sequence in *Animaniacs*. This will be accomplished just like the duck-bill spacecraft was done in *Tiny Toons*. The studio will also use the Amiga to generate some models to be sent to the animators. These models involve video cassette cases with titles and pictures on them. Once a case is defined in a 3-D rendering program, it can be viewed from any perspective and a model can be printed from that. So instead of drawing the cases by hand from different perspectives, they only have to be created once. It would be a simple task to map different titles and pictures on the same 3-D object—obviously, a tremendous time saver.

Because Warner Bros. is a multi-platform shop, it was imperative that the Amiga be able to integrate seamlessly. Fortunately, many Amiga programs support multiple-platform file formats, which allows you to generate an image on a Mac or a Silicon Graphics machine and then use the same file on an Amiga.

Warner Bros. purchased its first Amiga only this last November, so the machine's potential is still being explored. The Amiga offers a low-cost solution with powerful capabilities to animators. Not only can the Amiga handle black-and-white animation pencil tests, but it can also do full-screen, full-color, real-time animation, if necessary. Mills hopes to gradually use the Amiga more and more in animation production. Several people at Warner Bros. already have Amigas at home, and others are becoming interested after seeing what it can do.

In any event, the time when professional-quality cartoons are generated straight from a computer may be just around the corner. Perhaps the Amiga will have a hand in making that dream come true. ■

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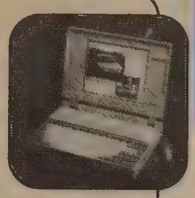

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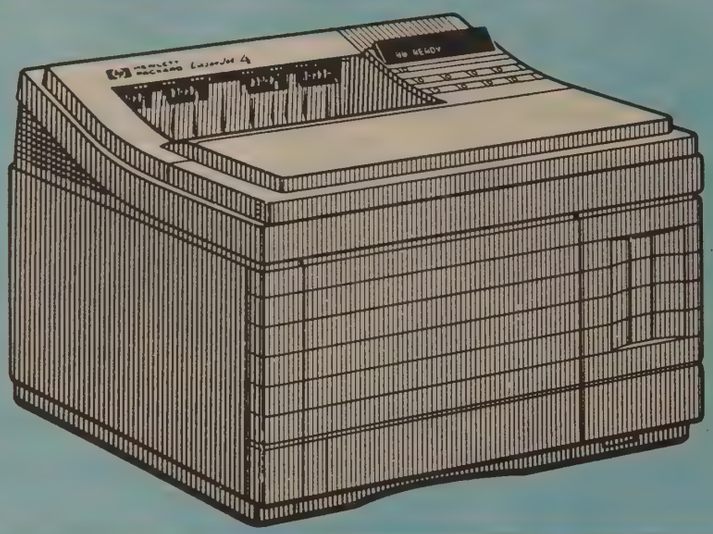

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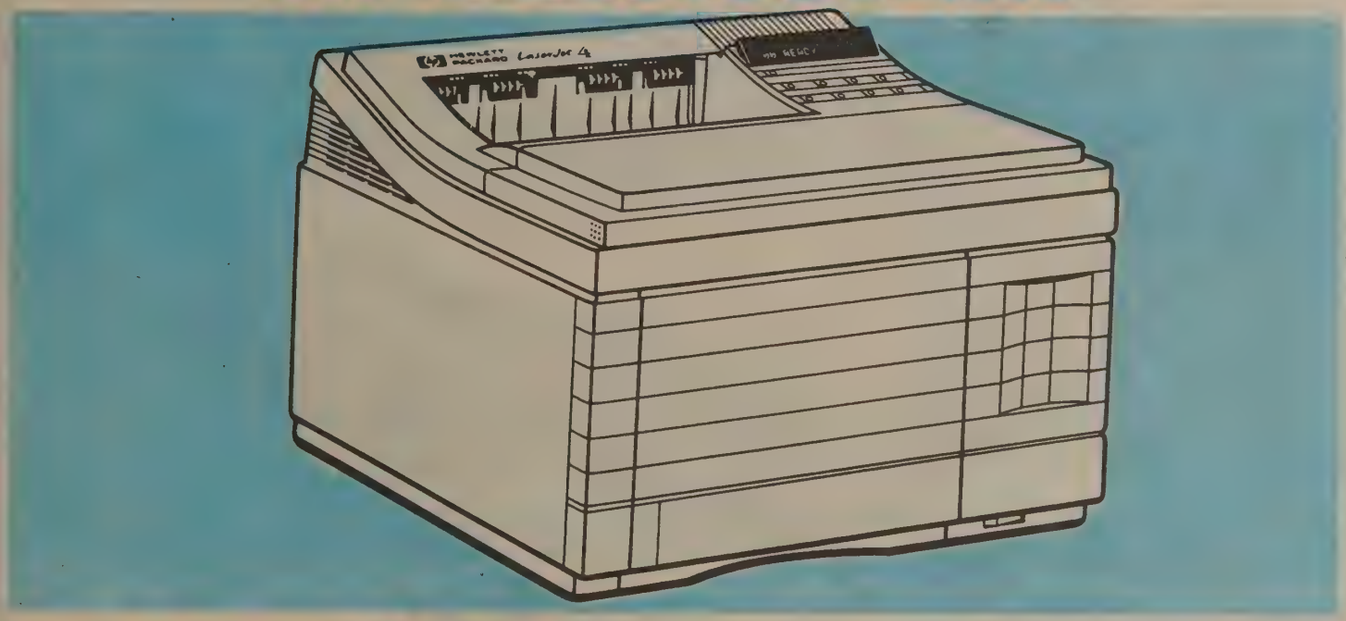

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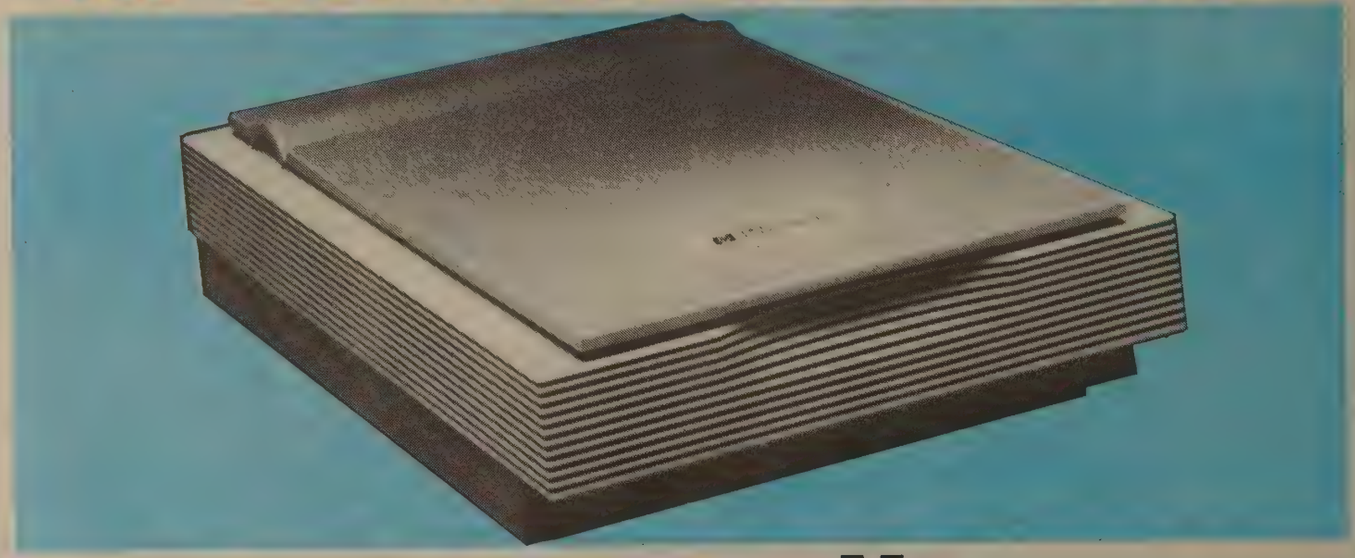

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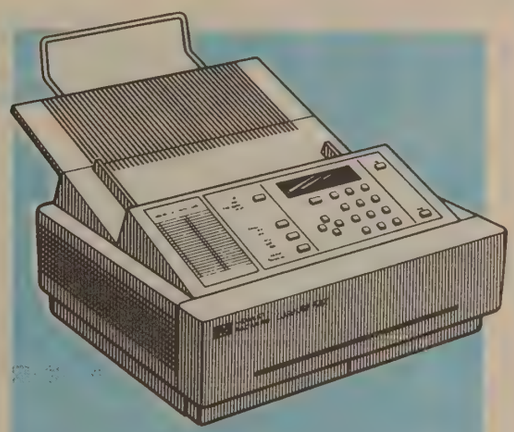

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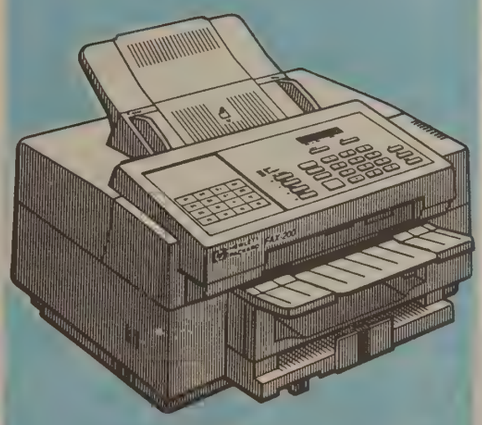

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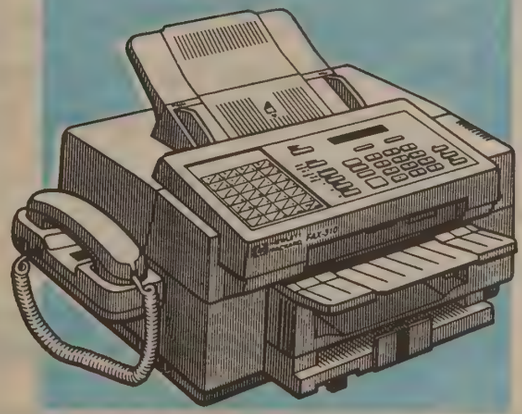

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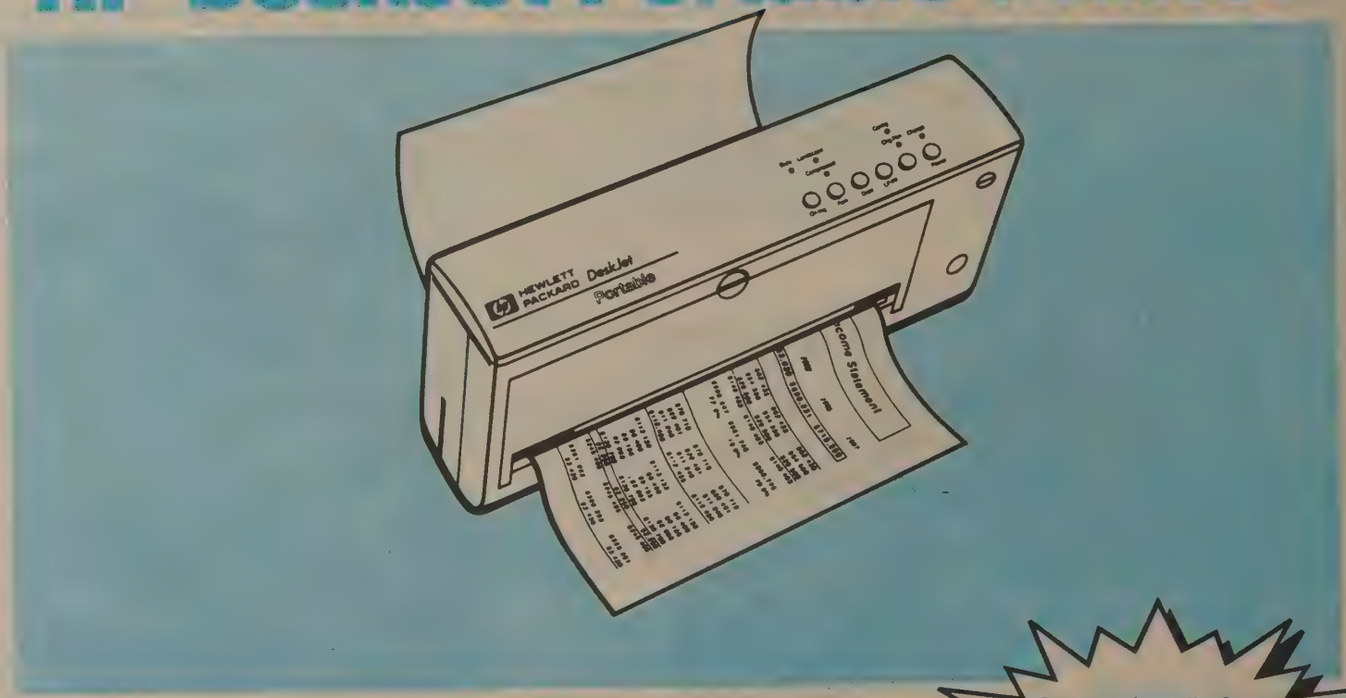

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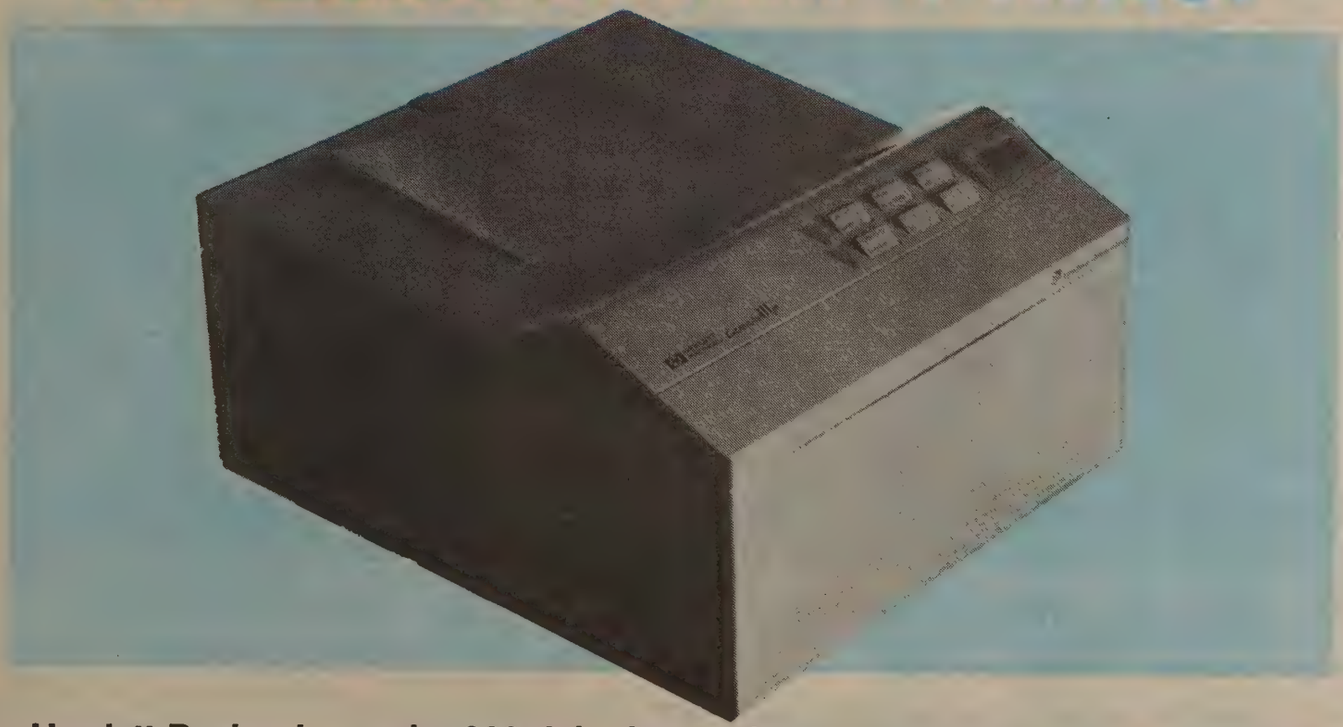

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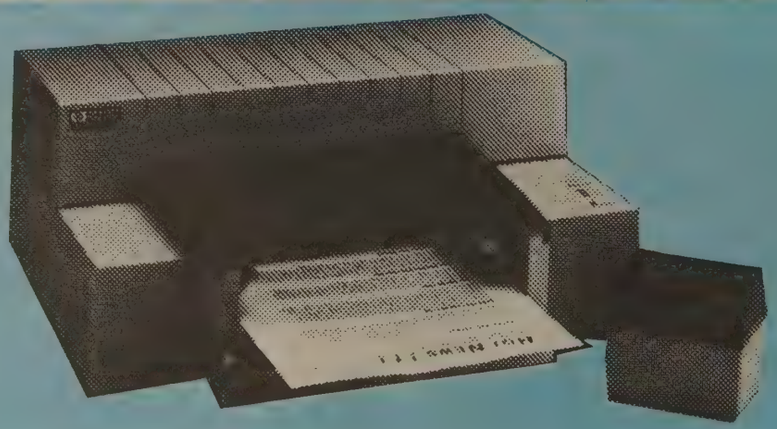

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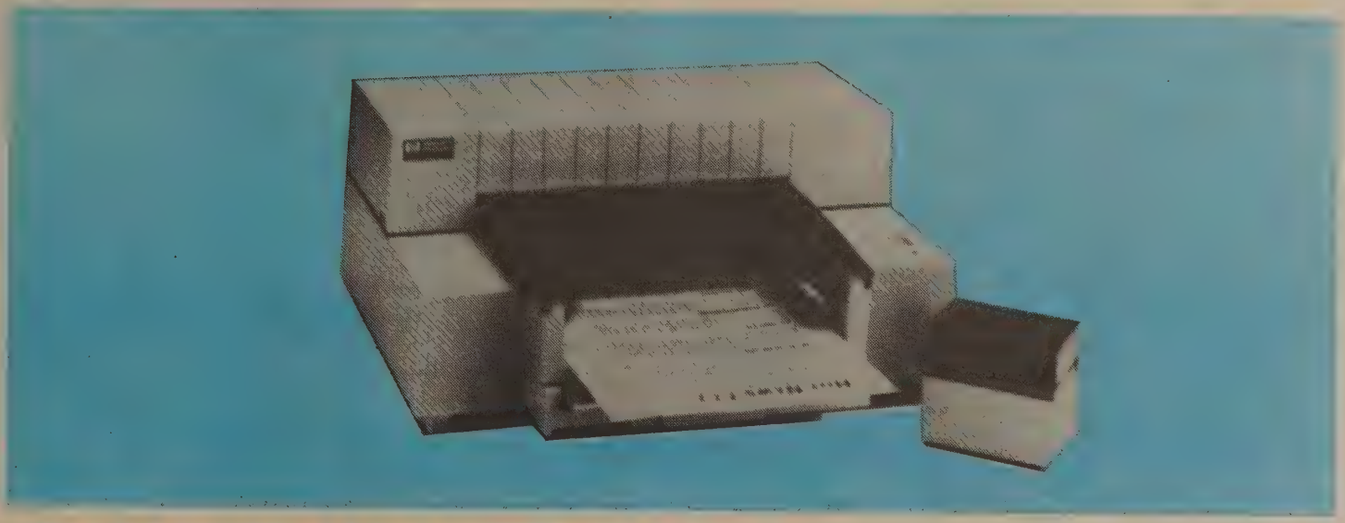

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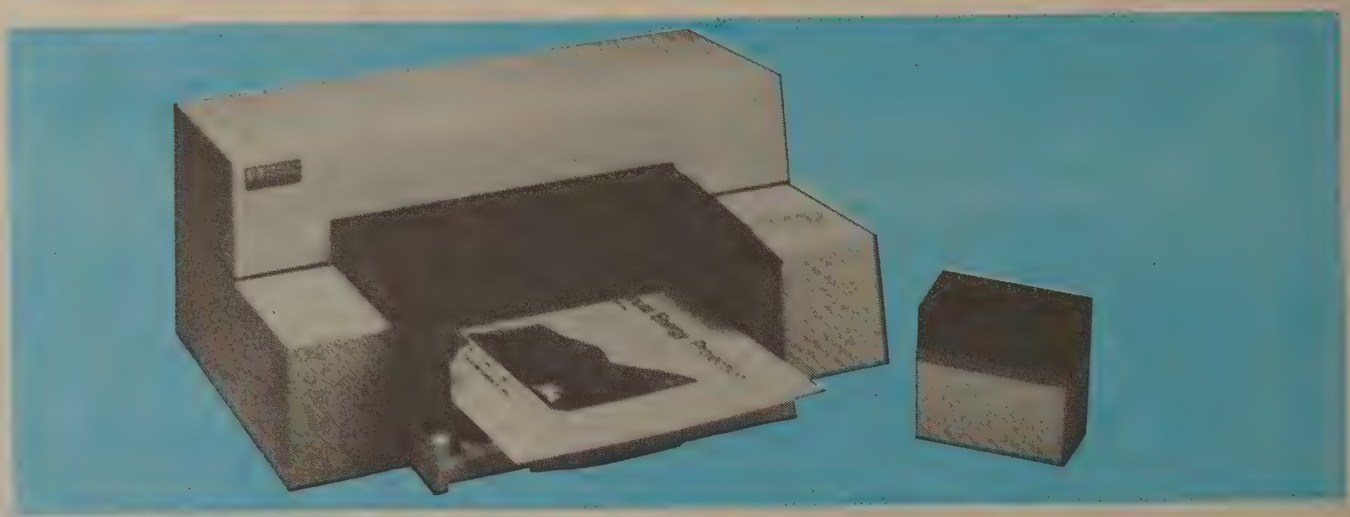

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- ❑ LAN Manager
- ❑ NFS
- ❑ Banyan VINES
- ❑ Other (please specify) _____

5. Which of the following types of computers are used by you or members of your department or work group, or household. (Select all that apply.)

	Company	Household
IBM/Compatible 286 PC	❑	❑
IBM/Compatible 386 PC	❑	❑
IBM/Compatible 486 PC	❑	❑
IBM/Compatible Laptop/Portable	❑	❑
Other IBM Compatibles	❑	❑
68040 Macintosh	❑	❑
68030 Macintosh IIfx, IIci, IIcx, IIx, IIsi	❑	❑
68020 Macintosh II/LC	❑	❑
Macintosh Portable PowerBook	❑	❑
68030 Macintosh SE/30	❑	❑
Other Macintosh	❑	❑
Amiga	❑	❑
Workstation (HP, Sun, DEC, Silicon Graphics, NeXT, etc.)	❑	❑
Other Platform (please specify)	❑	❑

_____

6. Please indicate which of the following products you plan to purchase for household or company use? (Select all that apply.)

Multimedia-related Hardware /Peripherals

	Company	Household
IBM/Compatible PCs	❑	❑
Macintoshes	❑	❑
Amigas	❑	❑
Workstations	❑	❑
Color monitors	❑	❑
Presentation monitors	❑	❑
Multimedia upgrade kits	❑	❑
Audio boards	❑	❑
Graphics boards	❑	❑
Digital/Analog video boards	❑	❑
MIDI sequencers/synthesizers	❑	❑
LCD display panels	❑	❑
Desktop scanners	❑	❑
Mice/joysticks/input tablets	❑	❑
Color printers	❑	❑
CD-ROM drives	❑	❑
Laser disc players	❑	❑
VCRs and VCR controllers	❑	❑
Video cameras	❑	❑
Laser printers	❑	❑
Color proofers	❑	❑
High-resolution scanners	❑	❑
Color scanners	❑	❑
Storage devices	❑	❑
Networking systems	❑	❑
Supplies/accessories	❑	❑
Color Copiers	❑	❑
Other (please specify)	❑	❑

_____

7. In which ways are you personally involved in your organization's decision to purchase these products? (Select all that apply.)

A. Multimedia-related hardware and peripherals
- ❑ Determine needs/features
- ❑ Evaluate brands
- ❑ Specify/recommend brands
- ❑ Specify/recommend vendors/suppliers
- ❑ Authorize the purchase
- ❑ Other (please specify) _____

B. Multimedia-related software
- ❑ Determine needs/features
- ❑ Evaluate brands
- ❑ Specify/recommend brands
- ❑ Specify/recommend vendors/suppliers
- ❑ Authorize the purchase
- ❑ Other (please specify) _____

Multimedia-Related Software	Company	Household
Authoring	❑	❑
Music composition/editing	❑	❑
Sound editing	❑	❑
2-D/3-D rendering/modeling	❑	❑
Animation	❑	❑
Desktop publishing	❑	❑
Draw/paint/image editing	❑	❑
Fonts	❑	❑
Presentation graphics	❑	❑
Clip art	❑	❑
Clip music	❑	❑
ip video/animation	❑	❑
Education application/titles	❑	❑
Electronic reference	❑	❑
Other (please specify)	❑	❑

_____

8. During the next 12 months, will you specify, recommend, buy, or approve the purchase of multimedia-related hardware, peripherals, software, or services worth: (Select one only.)
- ❑ $1,000,000 or more
- ❑ $500,000 to $999,999
- ❑ $250,000 to $499,999
- ❑ $100,000 to $249,999
- ❑ $50,000 to $99,999
- ❑ $25,000 to $49,999
- ❑ $10,000 to $24,999
- ❑ $5,000 to $9,999
- ❑ Less than $5,000
- ❑ None of these

9. In the last 12 months, did you specify, recommend, buy, or approve the purchase of multimedia-related hardware, peripherals, software, or services worth: (Select one only.)
- ❑ $1,000,000 or more
- ❑ $500,000 to $999,999
- ❑ $250,000 to $499,999
- ❑ $100,000 to $249,999
- ❑ $50,000 to $99,999
- ❑ $25,000 to $49,999
- ❑ $10,000 to $24,999
- ❑ $5,000 to $9,999
- ❑ Less than $5,000
- ❑ None of these

10. How many people are employed in your entire organization, including all its branches, subsidiaries, and locations? (Select one only.)
- ❑ 1000 or more
- ❑ 500-999
- ❑ 100-499
- ❑ 25-99
- ❑ Less than 25

11. What areas in your company do you see using multimedia? (Select all that apply.)
- ❑ Training
- ❑ Product announcements
- ❑ Corporate presentations
- ❑ Sales and marketing
- ❑ Other (please specify) _____

12. How do you usually buy computer hardware, software, accessories, and supplies?
- ❑ Through a local retail store
- ❑ Mail order
- ❑ Catalog
- ❑ Direct from manufacturer
- ❑ Direct from distributor
- ❑ Other (please specify) _____

Name: _____

Address: _____

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Phone: _____

Thank you for your participation!
Please reduce & fax this questionnaire to (213)851-8303.

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Serial Mouse
101 Keyboard

486-33DX W/256k ——— $1419

486-66DX2 W/256k Cache ——— $1689

ISA SYSTEM

4 Mb Ram
1.2 & 1.44 MB Floppy Drive (Teac)
2S/1P/1G
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Mini Tower Case
Svga Card (1 Mb, 1024 x 768, 256 Color)
Svga Monitor (1024 x 768, 0.28)
Serial Mouse
101 Keyboard

386-40SX Mhz ——— $889

386-40DX W/128K Cache ——— $999

486-33DLC W/256K Cache ——— $1149

486-33DX W/256K Cache ——— $1279

486-50Dx W/256K Cache ——— $1435

486-66DX W/256K Cache ——— $1529

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LOCAL BUS MOTHERBOARD (A.I.R.)

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Multi & Media beyond

MULTIMEDIA 101

Markets, Titles, And Other Pressing Issues

BY JONATHAN E.

Desktop multimedia for the home is still busy being born. The birth process has been difficult and is likely to remain so—the technology's potential is so attractive that early pioneers have often found little more than a "vapor market."

The big issues to be addressed are **content, design, finance, and marketing**—exactly the same problems that other consumer media have faced—and, to a large extent, solved.

Consider the fate of the HyperCard and CD-ROM-based *Electronic Whole Earth Catalog* (shipped a few short years ago) as an example of what happens when a product is brought to market when the technology is still evolving. New versions of HyperCard and the advent of System 7 made the CD-ROM inoperable without reinstalling earlier versions.

Some skeptics think we're still in that position with the consumer market. One prominent San Francisco publisher whose catalog has definite multimedia possibilities thinks that it's still too early to get into the market, for reasons including platform uncertainties, questions of content and marketing, and general direction. Independent entrepreneurs who have bravely plunged ahead have found financing to be a constant dance of courtship.

So far the multimedia market has been mostly in custom development for training, information kiosks, product presentations, and other areas where content is fairly rigidly defined, and marketing is not a matter of getting your product into the hands of the general public but of selling your services to a corporate client. However, we are promised a consumer multimedia market, comparable to book publishing, music, film, or video.

Leaving aside the questions of hardware and software, the big issues to be addressed are content, design, finance, and marketing—exactly the same problems that other consumer media have faced—and, to a large extent, solved.

At a recent meeting of the International Interactive Communications Society (IICS) in San Francisco, these issues came up for discussion. Frank Wiley of the San Francisco Bay Area Book Council put the evening together to explore the relationship between traditional book publishing and what-might-be for multimedia. Todd Wade, codirector of marketing for The Voyager Company, and Rick Smolan, photographer and producer of *From Alice to Ocean*, have both dealt with

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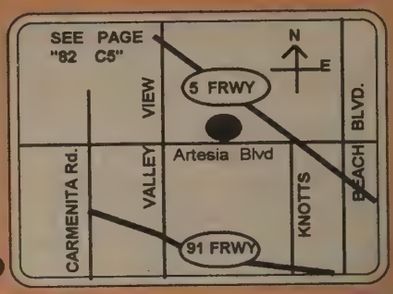

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MultiMedia & beyond

Voyager's Todd Wade showed an annotated version of A Hard Day's Night, due on CD-ROM later this year. "This," he remarked, "is the kind of title that gets people in video channels very excited."

these difficulties and were the featured speakers

In introducing the speakers, Wiley offered a brief analysis of the state of multimedia, in particular noting that cash flow and sales were major hurdles for most multimedia developers. He suggested that publishing offers a possible financial model for multimedia because of some similarities in sales figures. Many books only sell several thousand copies.

REALITY CHECK NO. 1: VOYAGER EXPANDED BOOKS

Wade explained his job as begging for shelf space for Voyager's titles, a formidable task in a new, small market—*Jurassic Park*, Voyager's top-selling title, has sales "north of three thousand units." Most of Voyager's sales are at trade shows and through mail order outlets, although "independent book store channels are increasing rapidly."

The series currently offers over thirty titles; they're designed to run on PowerBooks, although they will also run on any Macintosh with a large-screen (640 x 400 pixels) display. They require system software v6.0.7 or higher, as well as HyperCard 2.1 or HyperCard Player.

Expanded Books are shipped on 1.4MB high-density floppy disks—a fact Wade repeated three times to some appreciative laughter. You don't need a CD-ROM to enjoy at least some of the fruits of multimedia.

Wade explained that the digital rights to the content were licensed from the original publishers. Much attention had been devoted to making the books pleasant to read on the screen, primarily through traditional typographical techniques; the text is laid out in pages rather than scrolling text fields. With an Expanded Book, you can make your own comments in the margin, "dog-ear" or "paper clip" pages, search for words or pages, or switch to larger print, as well as find annotations with text, pictures, or sound.

The Expanded Book Toolkit allows you to create your own expanded book from text. Judging by Wade's demo, this an impressive product and the probable focus of a future column. He also demonstrated the *Poetry in Motion* CD-ROM "as a way of linking text to another medium to create a more dynamic book." This product has QuickTime movies of poets reading their work, and in some cases an interview, as well as the original text of the poem and the text of the performance, which are sometimes quite different. He also showed a future product from Voyager, an annotated version of *A Hard Day's Night*, due on CD-ROM later this year. "This," he remarked, "is

RESOURCES:

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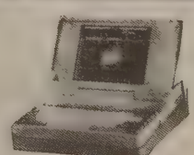

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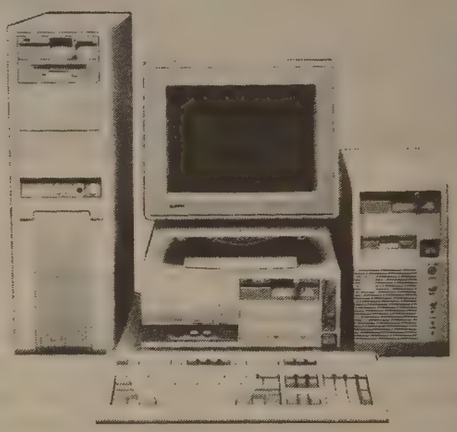

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REALITY CHECK NO.2: FROM ALICE TO OCEAN

Rick Smolan opened his part of the program by saying that he has "a lot of friends that are in the traditional side of publishing who are not quite sure that electronic publishing is a good idea. And I'm not actually quite sure which side of the fence I'm on."

Smolan has had a successful career as a photographer, working for *National Geographic*, *Time*, *Life*, and *Newsweek*. However, he explained, he found that he and other photographers shared the same frustration of spending a month on the road for a story, shooting "two or three hundred rolls of film," only to have twelve photos show up in the magazine. He came up with the idea of the "Day in the Life" books, which again lead to many unpublished photos.

Rick Smolan: "The last thing I want is for someone to hand me a disk and say, **'Here's 600 megabytes of unedited information.'** Who needs it? What we want is information presented in a way that's useful to us."

He saw the expanded capacity of electronic storage as a solution, allowing the use of more photos. However, when he first encountered multimedia a couple of years ago, unexpected interface problems surfaced. Creators and users alike "hated the dictatorship of traditional media, that the way the story was told was in linear fashion, that you could only read it from beginning to end. Basically it was like a highway from San Francisco to Los Angeles with no exits; all you could do was get on and get off.

"What these new multimedia creators wanted to do was to say, 'We don't want to tell you where to go. We're just going to plunk you down in the middle of the desert or the middle of the forest and we're not going to give you any road maps, there are no paths, and you can go anywhere you want.' I got bored after ten minutes of using the multimedia or interactive things that first came out—I didn't know where I'd been, I didn't know where I was going, I didn't know what I'd missed, so I turned it off."

Later, he realized the importance of organization and filters. "The reason I read the *New York Times* or the *Wall Street Journal* or an author is because that author, or that writer, or that magazine, has taken all the facts in the world or all the facts of that particular story and has decided what's important and what's not important. The last thing I want is for someone to hand me a disk and say, 'Here's 600 megabytes of unedited information.' Who needs it? What we want is information presented in a way that's useful to us.

"What's now starting to happen with companies like Voyager is that they're giving us multiple paths through a set of information or through a story. But there are still paths there. Somebody still decided what was important and what wasn't."

The end result of this thought process was *From Alice to Ocean*, a coffee table book about a woman's journey, with a dog and several camels, through the western deserts of Australia. It comes with both a CD-ROM and a Photo CD tucked into the back. The book is published by Addison Wesley. Apple financed the CD-ROM production.

Smolan said that digitally scanning the photos for inclusion in the Photo CD cost only about $2000. The principal advantage of the CDs is that they allow the inclusion of additional photos and QuickTime movies; they also include small quantities of other supplemental material.

A major advantage of the Photo CD is that you don't need a computer to use it and the Photo CD player is relatively cheap. This approach to getting multimedia into the home is sort of like flying in under the radar.

OTHER PERSPECTIVES

Later in the evening, the speakers were joined in a panel discussion by Vicki Morgan of Foghorn Press, Mark McCormick of Addison Wesley, and Neal Sofman of A Clean Well Lighted Place for Books.

Morgan represented traditional publishers and their concerns with multimedia production—it's important to them they make money out of the deal and that the multimedia developer will be around in the future. Sofman explained the realities of bookselling, what it takes to get shelf space, and the possibilities for multimedia titles in bookstores. McCormick covered the concerns of textbook publishers, including the fact that their target market is often using antique technology.

Wiley's advice to would-be multimedia-ers is that jobs are scarce but opportunities are not. If you want to get involved, your best first steps are to go to meetings like this, go to SIGs, meet people who are working out some of the difficulties in the field, take classes, and to join the IICS. There's an IICS meeting the second Tuesday of every month, alternating between San Francisco and the South Bay. Members attend free, non-members pay $10. The IICS also publishes a monthly newsletter and a directory of members. Annual membership is $75.

UPDATES & NEWS

For further insight into electronic book publishing, look into Sumeria's Electronic Book Fair, to be held August 26 and 27 at the Mark Hopkins InterContinental Hotel in San Francisco. There will be both an exhibition of electronic books and information sessions to answer questions about CD-ROM publishing. For information contact Sandy Butler at Sumeria, 329 Bryant St., Ste. 3D, San Francisco, CA 94107; phone (415)904-0811; fax (415)904-0888; or AppleLink SUMERIA.

For those readers who asked for a list of multimedia developers in the Bay Area: the March issue of *California Business* magazine contains a listing of what they and the IICS consider the top fifty multimedia companies in California. It's split 24/26 between customer developers and companies working on education and entertainment titles. This isn't a complete listing, but it's a handy resource. Back issues are available for $5 from California Business, 221 Main St., San Francisco, CA 94105-1919. The information is also available on disk as a database. Call 1-800-927-1100 to order.

In addition to the schools mentioned in the last column, University of California Extension offers classes in Santa Clara and Zakros InterArts has classes in San Francisco. For info on the UC Extension classes, write or phone University of California Extension, Science and Technology Department, 3120 De la Cruz Blvd., Santa Clara, CA 95052; (408)748-7375. Zakros InterArts can be reached at 614 York St., San Francisco, CA 94110; (415)282-5497. ■

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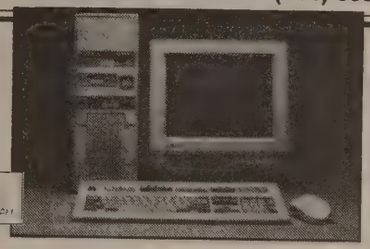

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Centris 650 8/230, CD	$3049/3379
Quadra 800 8/230, 8/500CD	$3729/4599
Quadra 950 8/0	$4299
LaserWriter 300, 310	$679*/929
LaserWriter Pro 600/630	$1699/2399
PowerBook 145 4/40, 4/80	$1899/2199
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E-Machines Futura MX 24-bit MAC	$649

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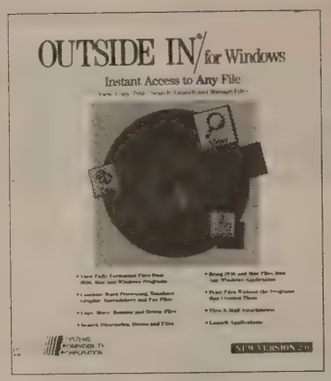
Continued from page 92

place that data into the Windows application you are working with. Outside In works with almost all Windows word processors, DOS word processors, Macintosh word processors, DOS and Windows spreadsheets, and databases. It runs as a standalone Windows program, or installs as part of your favorite word processor.



Here is a problem I was facing and which Outside In helped solve. I had a bunch of Q&A word processor files containing a series of policies we used over the past few years. I run a Windows system and Ami Pro is my word processor of choice. Since Ami Pro does not have a Q&A import filter I imported the Q&A file into Outside In and copied it to the clipboard. I then opened Ami Pro and pasted the Q&A document into the new policy manual I was writing. The document looked a bit funny, so I selected all of the Q&A text, told Ami Pro that this was now Normal text, and my Normal style sheet took effect. It happened almost as quickly as you are reading this paragraph.

Outside In also lets you view files, or even print the files or sections of the files you are viewing.

This is one of the utility programs that I feel is indispensable to any business environment—especially if you have been working with a variety of programs in the past and from time to time wish to take those old files and convert them into your Windows environment. (Systems Compatibility Corp., 401 N. Wabash, Ste. 600, Chicago, IL 60611. 312/329-0700, 1-800-333-1395)

MACINTOSH HARDWARE REVIEW

TURBO 040 & FASTCACHE TURBO

Manufactured By: DayStar Digital
List Price: $1599 (33MHz Turbo 040); $399 (33MHz FastCache card)
Reviewed By: Matthew Leeds

Daystar has a reputation for building the best accelerators in the Macintosh market. They consistently test out as among the fastest and always the most compatible in tests run by every Macintosh magazine. Their release of a 68040-based line of accelerators extends the range of their products.

The Turbo 040 is available in 25MHz and 33MHz versions now, with a 40MHz version coming later this year (once Motorola releases a 40MHz 68040). Each can accept a static RAM cache card that improves its performance by 10%—40%. The combination of the Turbo 040 and FastCache card together can improve the performance of a Mac IIci by over 400%, well past that of a Quadra 950.

In all of the testing I performed I found no software incompatibilities. If you are using some older programs you may take advantage of the QuadControl software provided with the card to toggle the caches on the 68040 chip to improve compatibility (with a performance penalty). Daystar also includes system software that allows applications that do not use the 68040's integrated math functions to take advantage of the chip's speed for floating point math routines.

Versions of the Turbo 040 are available for all Mac II family machines, the Performa 600, and the SE/30. I highly recommend this accelerator both for its performance and its compatibility. (Daystar Digital, Inc., 5556 Atlanta Hwy., Flowery Branch, GA 30542. 1-800-962-2077)

RAM POWERCARD

Manufactured By: DayStar Digital
List Price: $499
Reviewed By: Matthew Leeds

There are times when even the fastest hard drive is just not fast enough. Digitizing QuickTime movies, doing database sorts, image processing in Photoshop, or compiling programs during software development can turn your hard drive into a bottleneck. A RAM drive can remove that bottleneck.

The RAM PowerCard delivers zero-second access times and provides data transfer rates several times that of a hard drive. It uses memory SIMMs of up to 16MB, and has SIMM sockets for up to sixteen SIMMs. This means you can stuff up to 256MB of memory on a single RAM PowerCard, and you can gang the memory on more than one card together (if you can fit more than one card in your machine). Two versions of the card are available; to use 16MB composite SIMMs you need the version with horizontal SIMM sockets. It can take up to three NuBus slots since the SIMMs stick out quite a ways.

In testing the RAM PowerCard I compared it to a fast hard drive and a RAM drive created from memory on the motherboard. As you can see from the test results, the RAM PowerCard is much faster than a hard drive but about three times slower than a RAM drive created from motherboard memory. The sustained read and write figures are in MB/sec, the average access and seek figures are in milliseconds.

Volume	Sust. Read	Sust. Write	Avg. Access	Avg. Seek	Reads/Sec	Writes/Sec
Hard drive	1504	1448	17	9.8	680	93
RAM PowerCard	3725	3899	0	N/A	3226	3333
RAM drive	13831	13688	0	N/A	9091	8333

Clearly you need to analyze when you would want to use motherboard RAM for a RAM drive and when you would want to add a RAM PowerCard. One possible use would be as a source of high-speed virtual memory if all of your motherboard RAM was in use. Another would be if you had maxed out the memory on your motherboard, all was in use for applications, and you still needed a RAM drive. I found the Daystar RAM PowerCard to be well designed, easy to install, and simple to use. (Daystar Digital, Inc., 5556 Atlanta Hwy., Flowery Branch, GA 30542. 1-800-962-2077)

AMIGA SOFTWARE REVIEWS

PROFESSIONAL DRAW 3.0

Published By: Gold Disk
List Price: $199.95
Reviewed By: Douglas J. Nakakihara

Gold Disk has once again updated its standard setting structured-drawing program Professional Draw (ProDraw). Version 3.0 is chockfull with enhancements including a much needed Undo/Redo function. Like its cousin Professional Page (ProPage), Gold Disk's desktop publishing program, ARexx scripts called "Genies" are featured. Essentially every aspect of ProDraw can be controlled through ARexx. Over forty powerful Genies come with ProDraw and do things like automatic Avery label generation, style tag control, scaling, change point spacing, etc. These can be edited or you can write your own.

ProDraw will now use Compugraphic (CG) fonts without conversion. Adobe Type 1 fonts are also supported, but you must first convert them to CG format using the supplied FontManager program. (Note that you must have a complete metric file for the conversion to work.) Also, text handling has been improved significantly.

An exciting new feature is a hot-link between ProPage and ProDraw. With a keystroke, clips can be transferred from ProPage to ProDraw for editing. ProDraw can also load Encapsulated PostScript files (EPS), but they can't be displayed or edited. I'm hoping the next version will allow you to edit EPS images. A real time saver is ProDraw's new ability to set the display mode of individual objects (WYSIWYG/outline). Previously, this was a global-only setting.

Other improvements include improved

Continued on page 145

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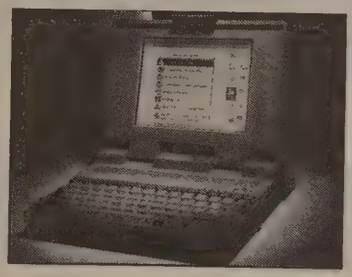

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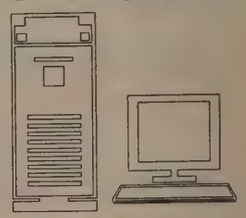

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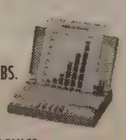

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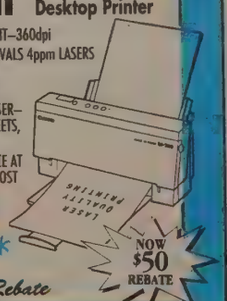

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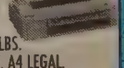

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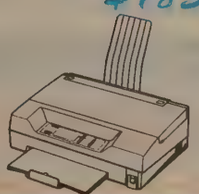

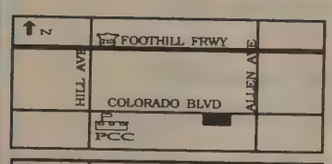

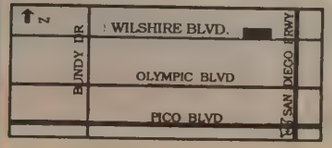

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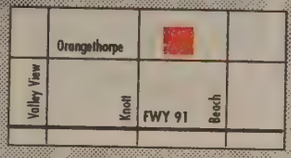

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	Vesa Local Bus, 3 V.L. slots	$700/$680
486DX-50MHz	ISA	$575/$555
with 128K cache and up to 32MB	EISA	$775/$755
	Vesa Local Bus, 3 V.L. slots	$600/$580
486DX-33MHz	ISA	$440/$430
with 128K cache and up to 32MB	EISA	$640/$630
	Vesa Local Bus, 3 V.L. slots	$465/$455
486SX-33MHz	ISA	$345/$335
with 128K cache	Vesa Local Bus, 3 V.L. slots	$370/$360
486SX-25MHz	ISA	$285/$275
with 128K cache	Vesa Local Bus, 3 V.L. slots	$310/$300
386DX-40MHz with 64K cache		$185/$180
386DX-33MHz with 64K cache		$165/$160
386SX-33MHz		$125/$120
386SX-25MHz		$105/$100

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VESA local bus 1MB SVGA card (16.7 million colors)	$125/$115
VESA local bus Diamond *Stealth 24*, 1MB SVGA card (16.7 million color) *(NEW!)*	$185/$175
VESA local bus Diamond Viper VLB, 2MB VRAM SVGA card (16.7 million color). *(NEW!)*	$475/460
VESA local bus IDE controller with AT I/O, 2 serial, 1 parallel, 1 game ports	$70/$65
VESA local bus IDE cache controller (4HD/2HD, 512K to 16MB, w/0K)	$200/$195
VESA local bus NE2000 Ethernet card, 10 Base T	$199/$195
EISA IDE cache controller card (4HD/2FD, 512K to 16MB w/0K)	$210/$205
EISA SVGA card with S3 chipset and 1MB VRAM	$310/$305
Cirrus Logic Windows Accelerator SVGA card with 1MB, 16 million colors	$65/$62
16bit NE2000 Ethernet card	$99/$95
16bit NE2000 Ethernet card, 10Base T	$109/$105
Super IDE (2HD/2FD with 2s,1p,1g)	$18/$17
Sound Blaster Pro	$145/$140
Promise IDE cache controller card (2HD/2FD, w/512K)	$130/$125
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14,400 baud internal fax/modem, V.32bis, V.42bis	$209/$199

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130 MB Maxtor MX-7120A IDE HD (15ms, 64K cache)	$210/$200
213 MB Maxtor MX-7213A IDE HD (15ms, 64K cache)	$290/$280
240MB, Maxtor MX-7245A IDE HD (15ms, 256K cache)	$310/$300
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Hewlett Packard DeskJet 550C Color InkJet printer	$700/$680
High capacity print cartridge for HP 500 family	$34/$33
Hewlett Packard Laserjet IIIP	$860/$840
Hewlett Packard Laserjet 4	$1345/$1320
Hewlett Packard Laserjet 4M	$1900/$1870
OkiData OL 400 laser printer	$595/$590
Panasonic KX-P1123 Printer (24pin/240cps/80col)	$195/$190
Panasonic KX-P2123 Quiet Printer (24pin/240cps/80col/color opt)	$258/$250
Color kit for the above printer	$45/$43

KEYBOARDS

	regular/CASH
Lite-On 4100 101 enhanced keyboard (non-click)	$22/$21
Acer 6311-G 101 keyboard (click)	$37/$36
Focus 2001 101 keyboard (click, hard dustcover)	$42/$40
KME keymouse 101 keyboard (click, track-ball built-in)	$62/$60

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Mini-tower case (200w ps)	$50/$47
Mini-deskstop case (200w ps)	$70/$67
Mid-tower case (230w ps)	$80/$76
Full-tower case (230w ps)	$99/$95

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TrueDox Trackball (50-800dpi, 3 button)	$35/$33
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PRODUCT SPOTLIGHT continued on page 138

bit-map image handling, gradient color fills, PANTONE color support, and better autotracing. This is a first class program and is definitely recommended. (Gold Disk, P.O. Box 789, Streetsville, Mississauga, Ontario, Canada L5M 2C2)

TRUEPRINT/24

Published By: ASDG, Corp.
List Price: $89
Reviewed By: Douglas J. Nakakihara

Normally, the Amiga can print 4 bitplanes (16 colors) in grayscale or 12 bitplanes (4096 colors) in color. This presents a problem if your image is 24-bit. However, with TruePrint/24 (TP24) you can output 256-color grayscale on a black-and-white printer. Color printers will be able to print the full 24 bits of color (i.e., 16.7 million colors).

The main screen consists of a ruled background with an outlined box, plus a control panel. The box represents the image. The image's output size can be changed by dragging one of the box's handles with the mouse pointer or by entering specific size data. If desired, the image's aspect ratio can be retained automatically when you adjust the output size.

Each square on the background grid indicates the size of the printable area of one sheet of paper. The grid's relative size is adjustable. The image's position on the page can be changed by dragging the box. Basic image processing is also featured, like dithering, orientation, brightness, contrast, and gamma, plus adjustment for red, green, and blue levels.

TruePrint/24 also features the ability to enlarge a picture and print it on multiple sheets of paper. This feature is accessed by setting the print dimensions larger than the paper size. It will automatically tell you how many sheets of paper will be required.

TruePrint/24 is identical to the Prefprinter saver option in Art Department Pro. So I'd only recommend it, if you don't already have AD Pro. TP24 works with most Preference-supported printers. (ASDG, Corp., 925 Stewart St., Madison, WI 53713. 608/273-6585)

MACINTOSH SOFTWARE REVIEWS

PREMIERE V2.0

Published By: Adobe Systems
List Price: $695
Reviewed By: Matthew Leeds

Unless you've been living in a cave for the last year or so, you've probably heard of QuickTime. While this new data format standard has been incorporated into word processors, spreadsheets, and database applications, for me the most exciting application has been QuickTime editing, with the promise of making your own movies on a Mac. This latest version of Premiere fulfills that promise with a vengeance.

Premiere has four main windows: the Project window where you load the elements you will be working with (movies, sound effects, graphics, and animations); the Clip window where you store elements; the Construction window where you assemble these elements on a timeline; and the Special Effects window which provides a selection of effects that can be applied to elements or used as transitions.

The list of new features in Premiere seems to go on forever. You can now record QuickTime movies from within Premiere. Support for SMPTE time code and edit decision lists (EDL) includes export of EDLs in professional formats. Machine control for professional and consumer video decks includes VISCA Hi8 decks. New import and export features include numbered PICT files and a new file format, FilmStrip, for import and export to/from Photoshop. A title creation module is included, with titles being anti-aliased and having drop shadows; you can also import EPS files. A motion control module lets you create flying video pages, and other new filters include a mesh warp effect.

There is support for the new generation of video digitizing boards that offer 30fps of full-screen video and support for 16-bit audio. The matting has been improved with professional quality keying for chroma, luminance, and alpha channels. Premiere combined with a second-generation digitizing board lets you edit and output video productions. It is quite simply the premiere QuickTime editing application, and this latest version moves it into the big leagues. (Adobe Systems, Inc., 1585 Charleston Rd., PO Box 7900, Mountain View, CA 94039. 415/961-4400)

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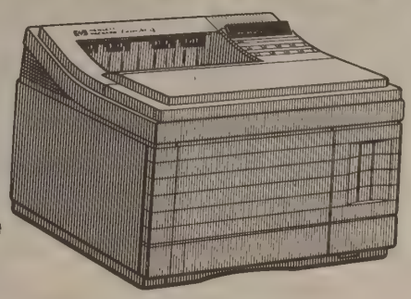

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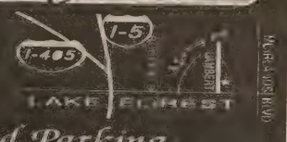

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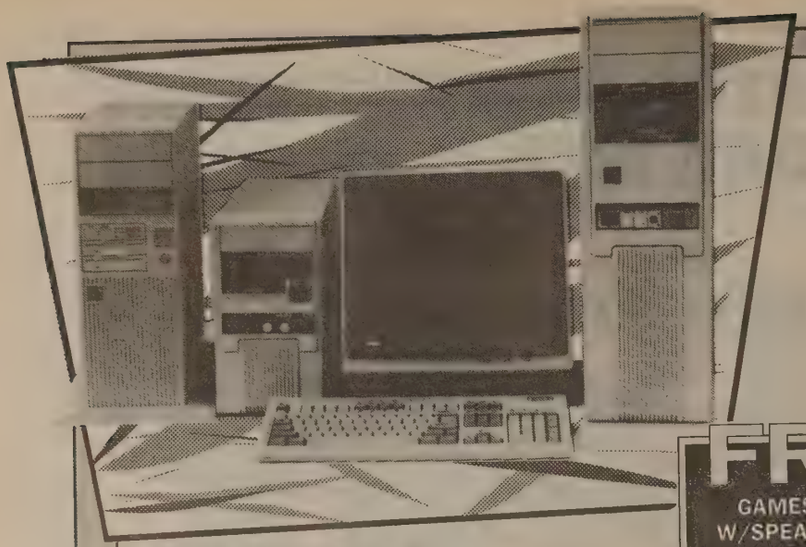

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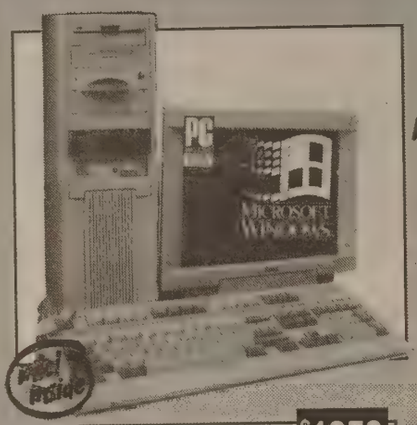

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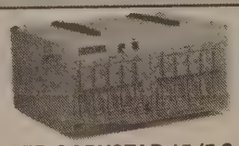

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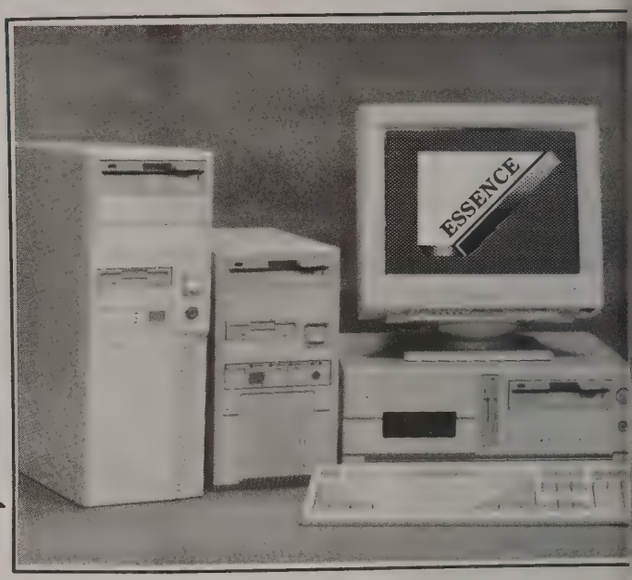

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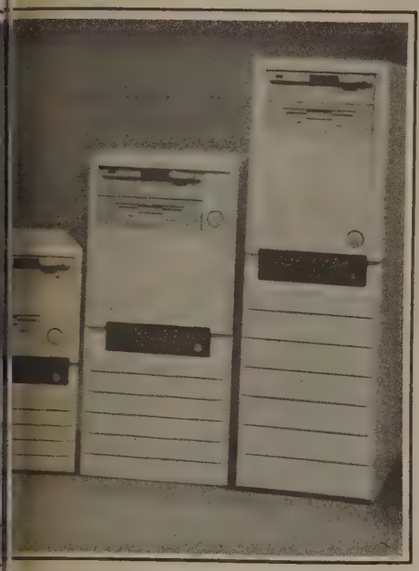

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* 2 Serial / 1 Parallel / 1 Game
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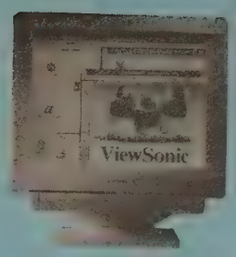

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* IDE FDD & HDD Controller
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386SX-40 ..... $380
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* TEAC 1.2M & 1.44M FDD
* IDE FDD & HDD Controller
* 2 Serial / 1 Parallel / 1 Game
* CS-932 Mini-Vertical Case
* 230 Watts Power Supply
* Enhanced 101 Keys Keyboard

Essence 486DLC

486DLC-40 ..... $660
486DLC-33 ..... $615

* 486DLC M/B
* Cyrix 486DLC Microprocessor
* Math Coprocessor
* 128K High Speed Cache
* 4MB Memory on board
* TEAC 1.2M & 1.44M FDD
* IDE FDD & HDD Controller
* 2 Serial / 1 Parallel / 1 Game
* CS-932 Mini-Vertical Case
* 230 Watts Power Supply
* Enhanced 101 Keys Keyboard

Star Moon Star WILD Multi-Media Upgrade Kit

Upgrade Kit included:
SONY CDU-31A CD-ROM
- The lastest CD-ROM from SONY, 680MB capacity, 64KB buffer size, 150KB data transfer rate, 490ms access speed, built-in caddy for ease of use

Sun Moon Star Stereo Sound Board
- MPC, Ad Lib, and Sound Blaster Pro Basic compatible
- Stereo Digital/Analog mixer for stereo audio sources: DAC, FM, microphone, line-in and CD
- Sampling with 8-bit stereo DACs and ADCs selectable sampling rates: 4 - 44.1 KHz
- 20-voice, 4-operator OLP3 FM synthesier
- Built-in MIDI interface for music and sound creation
- Standard PC joystick port
- Microphone Automatic Gain Control (AGC) amplifier
- Output power amplifier with volume control
- Built-in interface for SONY CDU-31A

Bundled Multimedia CD titles including:
- Multimedia Encyclopedia '92
- World Atlas
- U.S. Altas
- Chessmaster 3000
- Mavis Beacon Teaches Typing V.20

$415

Upgrade Options

For ISA Systems:

14" Infiniti IN8339SV Super VGA Monitor (.39dp) w/TVGA-8900CL 1MB VGA Card $285
14" Infiniti IN8828N4 Non-Interlaced Monitor (.28dp) w/TVGA-8900CL 1MB VGA Card $365
14" Acer View 11 VGA Color Monitor (.39dp) w/16-bit VGA Card (256K) $255
14" Acer View 33D Super VGA Color Monitor (.28dp) w/TVGA-8900CL 1MB VGA Card $340
14" Acer View 34T Non-Interlaced Color Monitor (.28dp) w/TVGA-8900CL 1MB VGA Card $370
15" Acer View 56L Digital Auto-Tracking Flat-Screen Monitor w/Orchid Fahrenheit 1 MB Graphics Accelerator $645
14" CTX-5468A Super VGA Monitor (.28dp) w/TVGA-8900CL 1MB VGA Card $335
14" CTX-5468NI Non-Interlaced Color Monitor (.28dp) w/TVGA-8900CL 1MB VGA Card $360
14" CTX-1461 Digital Auto-Tracking Monitor (.28dp) w/TVGA-8900CL 1MB VGA Card $380
15" CTX-1560 Digital Auto-Tracking Monitor (.28dp) w/Orchid Fahrenheit 1 MB Graphics Accelerator $610
17" CTX-1760 Digital Auto-Tracking Monitor (.28dp) w/Orchid Fahrenheit 1 MB Graphics Accelerator $970
14" ViewSonic 6E Non-Interlaced Color Monitor (.28dp) w/TVGA-8900CL 1MB VGA Card $385
14" ViewSonic 5E Non-Interlaced Color Monitor (.28dp) w/TVGA-8900CL 1MB VGA Card $445
15" ViewSonic 6FS Digital Auto-Tracking Flat-Screen Monitor w/Orchid Fahrenheit 1MB Graphics Accelerator $690
17" ViewSonic 7 Digital Auto-Tracking Monitor (.28dp) w/Orchid Fahrenheit 1MB Graphics Accelerator $1110

Hard Disk Subsystem & Other Options (w/Systems):

40MB IDE HDD $145
80MB IDE HDD $180
120MB IDE HDD $210
170MB IDE HDD $235
200MB IDE HDD $285
240MB IDE HDD $315
340MB IDE HDD $430
520MB IDE HDD $795
Tekram DC-600 IDE Caching Controller w/2MB $185
MicroSoft DOS 6.0 ..... $45
MicroSoft Windows 3.1 w/Mouse $55
Internal 2400 Buad Data Modem $30
Internal 9600/2400 Baud Fax Modem $55
Internal 14400/14400 Baud Fax Modem $195
Mitsumi CRMC Intrernal CD-ROM $199
Sony CDU-31A Internal CD-ROM $235
SoundBlaster Pro $138
Media-Vision Pro Audio Spectrum 16 Sound Card $180
Orchid Sound Producer Pro w/Speaker & Mic ... $149
Power Center (UL) $16
Creative Lab Multimedia Starter Kit $425
- Panasonic Internal CD-RoM (390ms)
- Sound Blaster Pro Basic
- Six CD Titles: Microsoft Bookshelf, SB Voice Editor FM Intelligent Organ, SB Talker, CD-Music Player, and MMPlay

For EISA & Local Bus Systems:

ViewSonic 6E 14" Non-Interlaced Monitor $325
ViewSonic 5E 14" Non-Interlaced Monitor $385
ViewSonic 6FS 15" Digital Non-Interlaced Monitor .. $525
ViewSonic 7 17" Digital Multi-Frequency Monitor $945
ViewSonic 8 20" Digital Multi-Frequency Monitor .. $1560
Acer View 34T 14" Non-Interlaced Monitor $305
Acer View 56L 15" Digital Non-Interlaced Monitor ... $480
Acer View 76i 17" Digital Non-Interlaced Monitor $885
CTX-1461 14" Non-Interlaced Monitor $320
CTX-1560 15" Digital Non-Interlaced Monitor $440
CTX-1760 17" Digital Non-Interlaced Monitor $805
MAG 1564 15" Digital Non-Interlaced Monitor $460
MAG 15H 15" Digital Non-Interlaced Monitor $550
MAG 17H 17" Digital Non-Interlaced Monitor $985
Optiquest 1500D 14" Digital Non-Interlaced Monitor $375
Optiquest 2000DX 15" Digital NI Monitor $485
Optiquest 4000DX 17" Digital NI Monitor $735

Memory Upgrade:

4MB (386SX) from 2MB $75
8MB (486DX/SX, 386DX) from 8MB $150
16MB (486DX/SX, 386DX) from 8MB $460

Tape Backup:

Hi-Lite (Archive) 250MB Tape Backup $189
Colorado DJ-10 120MB Tape Backup $159
Colorado DJ-20 250MB Tape Backup $209
Colorado JT-10 120MB Parallel Tape Backup ... $355
Colorado JT-20 250MB Parallel Tape Backup ... $420

Mitsumi CD-ROM Model: CRMC

- MPC compliant
- 630MB Capacity
- 350ms access time
- 175KB data transfer rate
- comes with 16-bit interface cards & cable

$199

For more parts see listings on next page ➤

ical Support: 714/546-7902

ESSENCE GROUP

ESSENCE GROUP

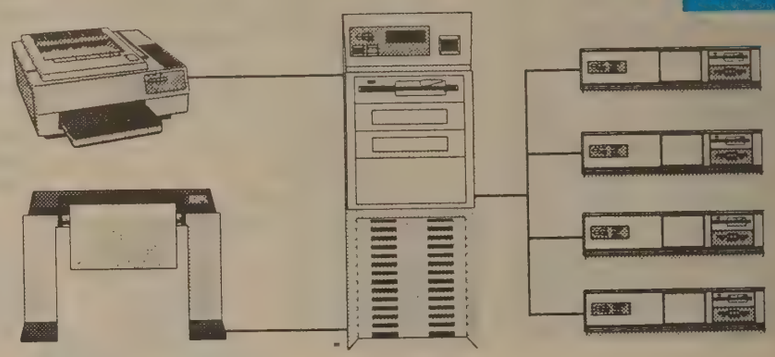
COMPLETE NETWORK SOLUTION, PLUG & PLAY.....

IN ESSENCE, WE ONLY USE QUALITY NETWORK PRODUCTS INCLUDED:
Network Cards: **Eagle, Intel, Accton, 3COM, SMC, Thomas-Conrad**
Controllers: **Always, Adaptec, DTC, Future Domain, UltraStor**
Hard Disk: **Conner, Fujitsu, Maxtor, Micropolis, Seagate, Storage Dimension**
Uninterruptiable Power Supply: **American Power Conversion, Tripp-Lite**
Tape Backup: **Colorado Memory System, Maynard/Archive, Mountain, Summit Express, Tecmar, Wangtek**

Novell Certified NetWare Engineer

FILESERVER:
ESSENCE 486DX-33MHz System
- VEGA 486DX-33MHz M/B
- 256K High Speed Cache
- 8MB Memory expandable to 32MB
- TEAC 1.2M & 1.44M FDD
- Always IN-2000 SCSI Controller
- Maxtor 535MB SCSI HDD
- 14" MonoVGA Monitor w/VGA Card
- 2 Serial / 1 Parallel Ports
- Full size Tower Case w/300Watt PS
- Dual fan for efficient cooling
- Enhanced 101 Keys Keyboard
- Intel EtherExpress 16-bit Ethernet Card
- Pre-loaded with Novell 3.11 Software

5 User Filesever $3195.00
10 User Filesever..... $3965.00
20 User Filesever..... $4495.00



Please call for different configurations for Fileserver or workstations.

WorkStation:

ESSENCE 386DX-40MHz System
- 386DX-40MHz M/B w/64K Cache
- 4MB Memory
- TEAC 1.2M & 1.44M FDD
- 14" SuperVGA Monitor w/1MB VGA Card
- 2 Serial / 1 Parallel Ports
- Mini Tower Case w/230Watts PS
- Enhanced 101 Keys Keyboard
- Intel EtherExpress 16-bit Ethernet Card

$995 per station

ESSENCE 386SX-33MHz System
- 386SX-33MHz M/B
- 2MB Memory
- TEAC 1.2M & 1.44MB FDD
- 14" VGA Monitor w/256K VGA Card
- 2 Serial / 1 Parallel Ports
- Mini Tower Case w/230Watts PS
- Enhanced 101 Keys Keybaord
- Intel EtherExpress 16-bit Ethernet Card

$695 per station

At Essence, we provide you with quality, reliability and value .....
CNE In-House or On-site Service
Quality Systems & Excellent Service
Network Training (Novell classes)
Leasing Plan available
Maintenance Contracts
Novell Authorized Dealer

This Month Specials:

INFINITI

Question:
What good is a system with VESA local bus motherboard, VESA local bus SuperVGA video card, but with a regular SuperVGA color monitor that does not meet VESA standards?
Answer:
Infiniti now has a VESA standard SuperVGA Non-Interlaced color monitor, the IN8828N4 to compliment your VESA local bus systems. The IN8828N4 monitor provides true VESA standard flicker-free displays. Manufactured by **Proton**, a premier brand in Audio-Video electronic products, you can be assured only the highest quality is delivered.

IN8828N4 major features:
14" non-glare, .28dot pitch non-interlaced
Maximum resolution up to **1280x1024** (not 1024x768!)
Compatible with VESA standards
Compatible with Apple Macintosh II (optional cable)
Horizontal sync 30 - 50KHz
Vertical sync 44 - 100Hz
Universal Power Supply 110 - 220 externally switchable

$305

Zoltrix 14400/14400 Internal High Speed Fax/Data Modem

Fax Features:
- Send and receive Fax message to or from any Group 3 Fax machine/ Fax cards
- Auto detect incoming fax or modem calls
- supports multiple file formats: ASCII, PCX, TIFF, IMG, BFX, DCX, TIFF class F
- Read word processing files directly
- Busy auto redial

Modem features:
- AT command set compatible
- V.42bis, MNP class 5
- V.42 Error correction: fully compliant with LAP-M and MNP class protocols

$195

CD-ROM Titles & Pacakges

☐ CD Software Bndle Pack 1 ..... $95.00
- Multimedia Encyclopedia 5.0
- Toolwork Reference Library
- U.S. Altas / World Altas
- The Animals!
- The Secret of Monkey Island
- CDSet Go

☐ Media Resources SuperPak Software Bundle $105.00
- Microsoft "Works for Windows"
- Mavis Beacon Teaches Typing
- World Atlas
- U.S. Altas with Automap
- Reference Library
- Secret Weapons of the Luftwaffe

☐ The Animals! $25.00
☐ Altas Pack - US / World Altas $25.00
☐ The Secret of Monkey Island $23.00
☐ The Chessmaster 3000 ..... $25.00
☐ Wing Commander / Ultima VI $25.00
☐ U.S. History $27.00
☐ U.S. Atlas with AutoMap $28.00
☐ Time Table of History $25.00
☐ Great Cities of the World Vol. 1 ..... $28.00
☐ TEMPRA Access Photo CD Imaging Software $30.00
☐ Microsoft Booksheft CD-ROM Reference Library $65.00
☐ Microsoft Works $60.00
☐ Mayo Clinic Family Health Book $25.00

For systems see list on front pages

ESSENCE GROUP

17815 Newhope Street, Suite G, Fountain Valley, CA 92708

Order Hot Line: 1-714-546-3110 G Technical Support: 1-714-546-7902 G Fax Order Line: 1-714-546-3803

SYSTEM BOARDS (0K)

VESA Local Bus System Boards (w/CPU)

Orchid 486DX2-66MHz VESA Local Bus M/B w/256K Cache	$810.00
Orchid 486DX-50MHz VESA Local Bus M/B w/256K Cache	$710.00
Orchid 486DX-33MHz VESA Local Bus M/B w/256K Cache	$570.00
AIR Baby 486DX2-66MHz VESA Local Bus M/B w/256K Cache	$780.00
AIR Baby 486DX-50MHz VESA Local Bus M/B w/256K Cache	$690.00
AIR Baby 486DX-33MHz VESA Local Bus M/B w/256K Cache	$555.00
VEGA Baby 486DX2-66MHz VESA Local Bus M/B w/256K Cache	$755.00
VEGA Baby 486DX-50MHz VESA Local Bus M/B w/256K Cache	$665.00
VEGA Baby 486DX-33MHz VESA Local Bus M/B w/256K Cache	$530.00
EFAR Baby 486DX2-66MHz VESA Local Bus M/B w/256K Cache	$693.00
EFAR Baby 486DX-33MHz VESA Local Bus M/B w/256K Cache	$465.00
OPTI Mini 486DX2-66MHz VESA Local Bus M/B w/256K Cache	$697.00
OPTI Mini 486DX-50MHz VESA Local Bus M/B w/256K Cache	$611.00
OPTI Mini 486DX-33MHz VESA Local Bus M/B w/256K Cache	$469.00
Hint Baby 486DX2-66MHz EISA VESA Local Bus M/B w/256K Cache	$758.00
Hint Baby 486DX-33MHz EISA VESA Local Bus M/B w/256K Cache	$530.00

VESA Local Bus Video Cards & Controllers:

ATi VLB mach 32 VESA Local Bus Graphics Accelerator w/2MB	$395.00
Cirrus Logic GD5426 1MB VESA Local Bus Graphics Accelerator	$112.00
Diamond Stealth-24 VESA Local Bus Graphics Accelerator w/1MB	$195.00
Diamond Viper VESA Local Bus Graphics Accelerator w/2MB VRAM	$395.00
Genoa 1MB VESA Local Bus Graphics Accelerator	$125.00
Oak 087 1MB VESA Local Bus Graphics Accelerator	$112.00
Orchid Fahrenheit VESA Local Bus Windows Accelerator w/1MB	$195.00
Orchid P9000 VESA Local Bus Graphics Accelerator w/3MB	$395.00
Orchid IO440 VESA Local Bus IDE Controller w/Multi I/o	$68.00
Turbo VESA Local Bus IDE Controller w/Multi I/O	$78.00
VESA Local Bus IDE Controller with Multi I/O	$58.00
Tekram DC-680 VESA Local Bus IDE Caching Controller (up to 16MB)	$190.00
UltraStor 34F VESA Local Bus SCSI Controller (Bus Master)	$280.00

EISA Bus & EISA Local Bus System Boards (w/CPU)

AIR Baby 486DX2-66MHz EISA M/B w/256K Cache (USA made)	$965.00
AIR Baby 486DX-50MHz EISA M/B w/256K Cache (USA made)	$880.00
AIR Baby 486DX-33MHz EISA M/B w/256K Cache (USA made)	$745.00
VEGA Baby 486DX2-66MHz EISA M/B w/256K Cache (USA made)	$910.00
VEGA Baby 486DX-50MHz EISA M/B w/256K Cache (USA made)	$820.00
VEGA Baby 486DX-33MHz EISA M/B w/256K Cache (USA made)	$685.00
OPTI Baby 486DX2-66MHz EISA Local Bus M/B w/256K Cache	$850.00
OPTI Baby 486DX-50MHz EISA Local Bus M/B w/256K Cache	$770.00
OPTI Baby 486DX-33MHz EISA Local Bus M/B w/256K Cache	$625.00

ISA Bus System Boards (w/CPU)

VEGA Baby (3)486DX2-66MHz M/B w/256K Cache (USA made)	$736.00
VEGA Baby (3)486DX-50MHz M/B w/256K Cache (USA made)	$645.00
VEGA Baby (3)486DX2-50MHz M/B w/256K Cache (USA made)	$618.00
VEGA Baby (3)486DX-33MHz M/B w/64K Cache (USA made)	$475.00
VEGA Baby (3)486SX-25MHz M/B w/64K Cache (USA made)	$330.00
VEGA Baby (3)486DX-40MHz M/B w/64K Cache (USA made)	$224.00
VEGA Baby (3)486DX-33MHz M/B w/64K Cache (USA made)	$235.00
OPTI Mini 486DX2-66MHz M/B w/256K Cache (Write-back cache)	$684.00
OPTI Mini 486DX-50MHz M/B w/256K Cache (Write-back cache)	$593.00
OPTI Mini 486DX2-50MHz M/B w/256K Cache (Write-back cache)	$566.00
OPTI Mini 486DX-33MHz M/B w/128K Cache (Write-back cache)	$430.00
OPTI Mini 486SX-25MHz M/B w/128K Cache (Write-back cache)	$285.00
Symphony Mini 486DX2-66MHz M/B w/256K Cache	$693.00
Symphony Mini 486DX-50MHz M/B w/256K Cache	$607.00
Symphony Mini 486DX2-50MHz M/B w/256K Cache	$580.00
Symphony Mini 486DX-33MHz M/B w/64K Cache	$435.00
Symphony Mini 486SX-25MHz M/B w/64K Cache	$290.00
UMC Mini 486DLC-40 M/B w/128K Cache (Cyrix 486DLC-40 CPU)	$330.00
UMC Mini 486DLC-33 M/B w/128K Cache (Cyrix 486DLC-33 CPU)	$285.00
OPTI Mini 486DLC-40MHz M/B w/128K Cache	$330.00
OPTI Mini 486DLC-33MHz M/B w/128K Cache	$285.00
OPTI Mini 386DX-40MHz M/B w/128K Cache (Write-back cache)	$171.00
UMC Mini 386DX-40MHz M/B w/128K Cache (Write-back cache)	$182.00
OPTI Mini 386DX-33MHz M/B w/128K Cache (AMD CPU)	$171.00
UMC Mini 386DX-33MHz M/B w/128K Cache (AMD CPU)	$181.00
**** 256K Cache upgrade from 64K for all 486 and 386 M/B*	*$45.00*
**** 256K Cache upgrade from 128K for all 486 and 386 M/B*	*$30.00*
OPTI Mini 386SX-40MHz MB w/16K Cache	$135.00
MX Mini 386SX-40MHz M/B	$119.00
OPTI Mini 386SX-33MHz M/B	$127.00
ALI Mini 386SX-33MHz M/B	$109.00
PC Mini 386SX-33MHz M/B	$104.00
C & T Mini 386SX-25MHz M/B	$122.00

ADD-ON BOARDS

Mono-Graphics Printer Card	$15.00
AVGA-I VGA Card w/256K	$27.00
AVGA-3 (Cirrus Logic GD5420) 1MB Graphics Accelerator (32K color)	$55.00
AVGA-3 (Cirrus Logic GD5422) 1MB Graphics Accelerator (16.7Mil color)	$60.00
TVGA-9000 VGA Card w/256K (Trident 9000 Chipset, upto 512K)	$33.00
TVGA-8900CL 1MB SuperVGA Card (2x faster than Trident 8900C)	$60.00
PVGA-1C VGA Card w/256K (WD90C11 Chipset, upto 512K)	$49.00
PVGA-1DW Graphics Accelerator w/1MB & Hi-Color Chip	$110.00
ATi Graphics Ultra Plus (1280x1024, 2MB Dram)	$315.00
ATi Graphics Ultra Pro (1280x1024 Non-Interlaced, 2MB VRam)	$405.00
ATi Graphics Ultra Pro EISA w/2MB VRAM	$565.00
Diamond SpeedStar-24X 1MB VGA Card (16Million colors)	$160.00
Diamond Stealth-24 1MB Windows Accelerator (16Million colors)	$165.00
Orchid Pro-Designer IIs 1MB VGA Card w/Sierra RAMDAC	$145.00
Orchid Pro-Designer IIs-E 1MB EISAVGA Card w/Sierra RAMDAC	$165.00
Orchid Fahrenheit Windows Accelerator (24-bit, 16.7Mil colors) w/1MB	$175.00
Orchid Fahrenheit-VA Windows Accelerator with Voice Annotation w/1MB - 24bit, 16.7Million colors, 1280x1024, Audio capabilities	$209.00
AT I-O (2 Serial 1 Parallel 1 Game) Card	$14.00
High Speed AT I/O (2 Serial 1 Parallel) - compatiable 16C550	$40.00
Parallel (Printer) Card	$10.00
AT IDE Adapter (Dual floppy & hard disk) w/Cable	$15.00
AT Super IDE IO Adapter (Dual floppy & hard disk, 2S, 1P, 1G)	$18.00
GSI-11V 2.88M Four (4) Floppy Controller & Cable	$52.00
GSI-18V Co-resident IDE Controller (Works with ST412,ESDI,SCSI)	$42.00
GSI-21V 2.88M Four (4) Floppy & Intelligent IDE Adapter w/Cable	$62.00
Promise IDE Caching Controller (512K,upto 8.5MB,2FD/2HD)	$125.00
Tekram DC-600B ISA IDE Caching Controller (up to 16MB)	$130.00
Tekram DC-680 VESA Local Bus IDE Caching Controller (up to 16MB)	$190.00
DTC-2250 EISA IDE Floppy/Hard Disk Controller	$125.00
DTC-3290 EISA SCSI Caching FD/HD Controller (0K, upto 4MB)	$435.00
DTC-3292 EISA SCSI FD/HD Controller	$325.00
UltraStor 14F SCSI FD/HD Controller	$210.00
UltraStor 24F EISA SCSI FD/HD Controller	$360.00
UltraStor 34F VESA Local Bus SCSI FD/HD Controller	$280.00
Future Domain 1670 16-bit SCSI Floppy/Hard Disk Adapter Kit	$158.00
Always IN-2000 16-bit SCSI Host Adapter (Novell Certified)	$189.00
ADAPTEC AHA-1542BK SCSI Bus Master Host Adapter Kit	$240.00
ADAPTEC AHA-1542CK SCSI Bus Master Host Adapter Kit	$260.00
ADAPTEC AHA-1542BK-Plus SCSI Bus Master Host Adapter Kit	$315.00
ADAPTEC AHA-1742AK EISA SCSI Bus Master Adapter Kit	$410.00

MONITORS

AcerView 11 14" VGA Monitor (640x480, 39dp)	$225.00
AcerView 33D 14" SuperVGA Color Monitor (1024x768, 28dp)	$275.00
AcerView 34T 14" Non-Interlaced Monitor (1024x768, 28dp)	$305.00
AcerView 35 14" SuperVGA Monitor (1024x768,.26dp)	$450.00
AcerView 56L 15" Digital Multi-Frequency Color Monitor (.28dp)	$480.00
AcerView 76i 17" Digital Multi-Frequency Color Monitor (.28dp0	$885.00
CTX5439A 14" SuperVGA Color Monitor (1024x768, 39dp)	$235.00
CTX5468A 14" SuperVGA (TriScan) Color Monitor (1024x768,.28dp)	$270.00
CTX5468NI 14" Non-Interlaced Color Monitor (1024x768,.28dp)	$300.00
CTX1461 14" Non-Interlaced Color Monitor (1024x768, 72Hz refresh)	$320.00
CTX1560 15" Digital Non-Interlaced Color Monitor (1024x768, 28dp)	$440.00
CTX1760 17" Digital Flat-Screen Color Monitor (1280x1024, 28dp)	$805.00
Infinity IN8339SV 14" SuperVGA Color Monitor (1024x768, 39dp)	$225.00
Infinity IN8828SV 14" SuperVGA Color Monitor (1024x768, 28dp)	$268.00
Infinity IN8828N4 14" Non-Interlaced Color Monitor (1280x1024, 28dp)	$305.00
MAG 15e4 15" Color Monitor (1280x1024, 28dp0	$460.00
MAG MX-15H 15" Color Monitor (1280x1024, 28dp)	$550.00
MAG MX-17H 17" Color Monitor (1280x1024, 28dp)	$985.00
NEC MultiSync 3FGx 15" Color Monitor (1024x768, 28dp)	$625.00
NEC MultiSync 4FG 15" Color Monitor (1024x768, 28dp)	$750.00
NEC MultiSync 5FG 17" Color Monitor (1280x1024, 28dp)	$1315.00
NEC MultiSync 6FG 21" Color Monitor (1280x1024, 28dp)	$2350.00
Optiquest 800S 14" VGA Color Monitor (640x480, 39dp)	$225.00
Optiquest 900S 14" SuperVGA Color Monitor (1024x768, 28dp)	$280.00
Optiquest 1000S 14" Non-Interlaced Color Monitor (1024x768, 28dp)	$305.00
Optiquest 1500D 14" Digital Non-Interlaced Monitor (1024x768, 28dp)	$375.00
Optiquest 2000DX 15" Digital Multi-Freq Monitor (1280x1024, 28dp)	$485.00
Optiquest 4000DX 17" Digital Multi-Freq Color Monitor (1024x768,.31dp)	$735.00
Sony CPD-1430 14" MultiScan Monitor (Non-Interlaced, 25dp)	$590.00
Sony CPD-1604S 17" MultiScan Monitor (Non-Interlaced, 25dp)	$995.00
ViewSonic 4E 14" SuperVGA Color Monitor (1024x768, 28dp)	$295.00
ViewSonic 6 14" Non-Interlaced Color Monitor (1024x768, 28dp)	$335.00
ViewSonic 6E 14" Non-Interlaced Color Monitor (1024x768, 28dp)	$328.00
Viewsonic 5E 14" Non-Interlaced Color Monitor (1024x768,72Hz refresh)	$385.00
ViewSonic 6FS 15" Digital Multi-Frequency Color Monitor	$525.00
ViewSonic 7 17" Digital Multi-Frequency Color Monitor (.28dp)	$945.00
ViewSonic 8 20" Digital Multi-Frequency Color Monitor (.31dp)	$1560.00
ViewSonic 15 15" Digital Multi-Freq Color Monitor (.28dp,76Hz refresh)	$625.00
ViewSonic 17 17" Digital Multi-Freq Color Monitor (.28dp,76Hz refresh)	$1160.00
ViewSonic 20 20" Digital Multi-Freq Color Monitor (.28dp,76Hz refresh)	$1785.00

FLOPPY & HARD DRIVES

TEAC 1.2MB FDD (5.25")	$54.00
TEAC 1.44MB FDD (3.5") w/Mounting Kit	$49.00
TEAC 2-in-1 1.2/1.44MB FDD	$127.00
TEAC 2.88MB FDD (3.5") w/Mounting Kit	$88.00
Mitsumi 1.2MB FDD (5.25")	$50.00
Mitsumi 1.44MB FDD (3.5") w/Mounting Kit	$46.00
Conner CP-30084 80MB IDE HDD (17ms)	$180.00
Conner CP-30104 120MB IDE HDD (17ms)	$210.00
Conner CP-30174 170MB IDE HDD (17ms)	$235.00
Conner CP-30204 210MB IDE HDD (12ms,256K cache buffer)	$315.00
Conner CP-30254 251MB IDE HDD (14ms,64K cache buffer)	$320.00
Conner CP-3544 520MB IDE HDD (12ms,256K cache buffer)	$850.00
Conner CP-3540 520MB SCSI HDD (12ms,256K cache buffer)	$860.00
Fujitsu M2624T 520MB IDE HDD (12ms, 5yr warranty)	$795.00
Fujitsu M2624FA 520MB SCSI HDD (12ms, 5 yr warranty)	$805.00
Fujitsu M2266SA 1.2GB SCSI HDD (12ms, 5yr warranty)	$1210.00
Fujitsu M2652S 2.0GB SCSI HDD (12ms, 5yr warranty)	$2040.00
Fujitsu M2654S 2.4GB SCSI HDD (12ms, 5yr warranty)	$2290.00
Maxtor MX-7120A 120MB IDE HDD (15ms)	$215.00
Maxtor MX-7120S 120MB SCSI HDD (15ms)	$260.00
Maxtor MX-7213A 213MB IDE HDD (15ms)	$298.00
Maxtor MX-7213S 213MB SCSI HDD (15ms)	$360.00
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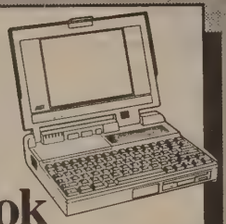

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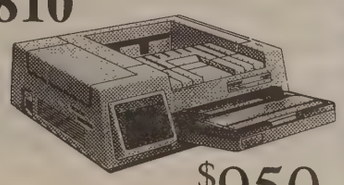

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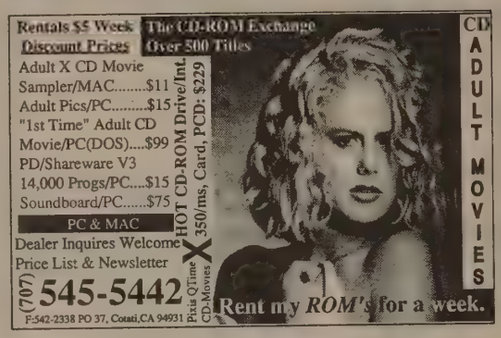

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Please take the time to answer the questions below and fax back your response to (213) 851-8303. As an added bonus for your participation, we will place your name in a drawing for a FREE first-class subscription to *MicroTimes* upon receipt of your completed questionaire.

1. What is your organization's primary business activity at your location?
- ❑ Aerospace
- ❑ Government
- ❑ Education
- ❑ Architecture, Engineering
- ❑ Communications: Advertising, Graphic Arts, Marketing, Public Relations, etc.
- ❑ Media: Broadcast, Film, Television, Publishing, etc.
- ❑ Manufacturing (computer, multimedia related): Computer/audio/video/audiovisual hardware, software, peripherals, etc.
- ❑ Manufacturing (other) _____
- ❑ Dealer, retailer, distributor (other) _____
- ❑ Accounting, Banking, Finance, Insurance, Real Estate
- ❑ Health, Medical, Legal
- ❑ Agriculture, Mining, Construction, Oil, Transportation, Utilities
- ❑ Research and Development
- ❑ Computer/multimedia contracting, consulting
- ❑ Consulting (other) _____
- ❑ Other businesses and services _____
- ❑ Other (please specify) _____

2. Title: (Select one only.)
- ❑ Chairman/President/ Owner/Partner
- ❑ Vice President/General Manager
- ❑ Director/Department Manager
- ❑ Project Manager/Group Leader
- ❑ Creative Director/Designer/Producer
- ❑ Micro Manager/Coordinator/Specialist
- ❑ Network/Datacomm./Telecom Manager
- ❑ Manager/Supervisor (not listed above)
- ❑ Programmer/Analyst
- ❑ Architect/Engineer
- ❑ Specialist/Technician
- ❑ Scientist
- ❑ Educator
- ❑ Professional
- ❑ Consultant
- ❑ Representative
- ❑ Other (please specify) _____

3. Department/Function: (Select one only.)
- ❑ Engineering/Technical
- ❑ MIS/DP
- ❑ Manufacturing/Operations/Production
- ❑ Administration/Management/Human Resources
- ❑ Accounting/Finance
- ❑ Advertising/Communications/Public Relations/Promotions
- ❑ Sales/Marketing
- ❑ Industrial design
- ❑ Corporate training
- ❑ Education
- ❑ Science/Research & Development
- ❑ Consulting
- ❑ Other (please specify) _____

4. Which of the following operating systems are in use at this entire location? (Select all that apply.)

HW Operating Systems:
- ❑ DOS
- ❑ Windows
- ❑ OS/2
- ❑ Macintosh
- ❑ UNIX
- ❑ Other (please specify) _____

LAN Operating Systems:
- ❑ Novell Netware
- ❑ Appleshare
- ❑ LAN Manager
- ❑ NFS
- ❑ Banyan VINES
- ❑ Other (please specify) _____

5. Which of the following types of computers are used by you or members of your department or work group, or household. (Select all that apply.)

	Company	Household
IBM/Compatible 286 PC	❑	❑
IBM/Compatible 386 PC	❑	❑
IBM/Compatible 486 PC	❑	❑
IBM/Compatible Laptop/Portable	❑	❑
Other IBM Compatibles	❑	❑
68040 Macintosh	❑	❑
68030 Macintosh IIfx, IIci, IIcx, IIx, IIsi	❑	❑
68020 Macintosh II/LC	❑	❑
Macintosh Portable PowerBook	❑	❑
68030 Macintosh SE/30	❑	❑
Other Macintosh	❑	❑
Amiga	❑	❑
Workstation (HP, Sun, DEC, Silicon Graphics, NeXT, etc.)	❑	❑
Other Platform (please specify)	❑	❑

_____

6. Please indicate which of the following products you plan to purchase for household or company use? (Select all that apply.)

Multimedia-related Hardware /Peripherals

	Company	Household
IBM/Compatible PCs	❑	❑
Macintoshes	❑	❑
Amigas	❑	❑
Workstations	❑	❑
Color monitors	❑	❑
Presentation monitors	❑	❑
Multimedia upgrade kits	❑	❑
Audio boards	❑	❑
Graphics boards	❑	❑
Digital/Analog video boards	❑	❑
MIDI sequencers/synthesizers	❑	❑
LCD display panels	❑	❑
Desktop scanners	❑	❑
Mice/joysticks/input tablets	❑	❑
Color printers	❑	❑
CD-ROM drives	❑	❑
Laser disc players	❑	❑
VCRs and VCR controllers	❑	❑
Video cameras	❑	❑
Laser printers	❑	❑
Color proofers	❑	❑
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Storage devices	❑	❑
Networking systems	❑	❑
Supplies/accessories	❑	❑
Color Copiers	❑	❑
Other (please specify)	❑	❑

_____

7. In which ways are you personally involved in your organization's decision to purchase these products? (Select all that apply.)

A. Multimedia-related hardware and peripherals
- ❑ Determine needs/features
- ❑ Evaluate brands
- ❑ Specify/recommend brands
- ❑ Specify/recommend vendors/suppliers
- ❑ Authorize the purchase
- ❑ Other (please specify) _____

B. Multimedia-related software
- ❑ Determine needs/features
- ❑ Evaluate brands
- ❑ Specify/recommend brands
- ❑ Specify/recommend vendors/suppliers
- ❑ Authorize the purchase
- ❑ Other (please specify) _____

Multimedia-Related Software	Company	Household
Authoring	❑	❑
Music composition/editing	❑	❑
Sound editing	❑	❑
2-D/3-D rendering/modeling	❑	❑
Animation	❑	❑
Desktop publishing	❑	❑
Draw/paint/image editing	❑	❑
Fonts	❑	❑
Presentation graphics	❑	❑
Clip art	❑	❑
Clip music	❑	❑
ip video/animation	❑	❑
Education application/titles	❑	❑
Electronic reference	❑	❑
Other (please specify)	❑	❑

_____

8. During the next 12 months, will you specify, recommend, buy, or approve the purchase of multimedia-related hardware, peripherals, software, or services worth: (Select one only.)
- ❑ $1,000,000 or more
- ❑ $500,000 to $999,999
- ❑ $250,000 to $499,999
- ❑ $100,000 to $249,999
- ❑ $50,000 to $99,999
- ❑ $25,000 to $49,999
- ❑ $10,000 to $24,999
- ❑ $5,000 to $9,999
- ❑ Less than $5,000
- ❑ None of these

9. In the last 12 months, did you specify, recommend, buy, or approve the purchase of multimedia-related hardware, peripherals, software, or services worth: (Select one only.)
- ❑ $1,000,000 or more
- ❑ $500,000 to $999,999
- ❑ $250,000 to $499,999
- ❑ $100,000 to $249,999
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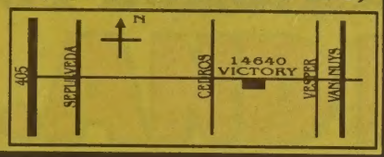

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What If You Talked To A Computer? And What If The Computer Talked BACK?

It would be a noisy world, that's what.

BY JOHN C. DVORAK

I've always thought the idea of voice recognition was not necessarily a good one. Who wants to hear an office full of people yelling at their machines? More recently I noticed people yelling at their machines anyway, so I figured, what difference would it make?

The key to voice recognition in a quiet office will be a technology that allows you to talk into a phone headset to interact with the computer. Kind of like calling home. On the other end is the computer. At some point the computer is going to talk back and talk back succinctly.

At first this talk back will be pretty bland: "Working, working. File retrieved."

DVORAK'S LAST COLUMN

At some point the computer voice will be given personality. You'll probably buy these personalities from a software vendor, either as a package of various personalities or perhaps expensive elaborate personalities. I expect to hear everything from a sexy female voice: "Oh, it's so nice to hear you again. What file was it that you wanted, dear?" I recall the old *Star Trek* episode where they were experimenting with the main computer and it kept calling Captain Kirk "dear," much to the chagrin of the crew.

There is also the officious computer voice, which might become popular. Let's not overlook the popular computer-as-slave: "I will get the file immediately, my master, sir!" The computer could even shout back at the user much like a Marine in boot camp. "I CAN'T HEAR YOU!!"

Traditionalists may want a computer-sounding computer, machine-voiced lisp and all. Others may want that bored robot sound used on the TV series *Hitchhiker's Guide to the Galaxy.*

Once personality modules are developed, every aspect of personality will be explored, from the sublime to the ridiculous. Soon virus writers will write code that will go in and turn the sexy siren, for example, into a stuttering slob.

"I'll r-r-r-r-retrieve t-t-t-t-that d-d-d-d-d-date immediately! Hic! Belch! S-s-s-s-sorry! Burp!"

You can imagine some outstanding virus doing this to millions of computers at once.

To move us closer to the future, here are some ideas for both personality module designers and virus coders to ponder. Computer personalities of the future.

1) **Nerd I.** It's always popular to make the computer a wise-ass. Since day one, the coders of the world have inserted smart-ass retorts into code. Now the machine can actually sound like a snotty-nosed punk with that certain indescribable whine. "Oh. Smooth move. Whoever taught you to use computers? Or did any one *ever* teach you anything?"

2) **The Nagging Mom.** Some people just can't keep up the pace without some one nagging them to do everything. This is particularly true of teenage boys, many of whom use computers. "Did you make sure to put all the disks back in their sleeves? Do that before you do *any thing* else. And when, oh when, are you going to sort out the C: drive files? You have files scattered throughout the drive and there is no rhyme or reason to it..."

3) **The Goofball.** You could use this character to annoy your fellow workers by putting the computer on a loudspeaker. I suspect some of the voices might be licensed from Walt Disney. You could have Mickey and Donald and Goofy. Goofy would be particularly effective at annoying coworkers. "Hyulk! Golly, what was that you wanted? A file. Hyulk! Duh, what file did you say? Wow you have a lot of files on here, huh?"
You could also use a Bart Simpson personality module to create havoc. "What file? I didn't do nothing. Nobody saw me. You can't prove a thing!"

4) **The Joker.** Here's a module that tells a joke to you every time you make a request. "Sure I'll get that file, but first, did you hear the joke about the two bears in the woods? The one bear comes across a campfire and says...."
A variation on the joker is the philosopher who has some poignant one-liner to add to the conversation—a kind of Thought For The Day thing.

5) **The Yes Man.** This would be a very popular module in most of today's corporations. It would be available in both male and female versions. It would agree with you about everything and constantly praise you. "Get the Jones file? Great idea, boss. Good thinking! I'll have it for you right away. Sounds like a winner to me!"

6) **The Worry Wart.** What can I say? Some people love to work under a cloud of worry and uncertainty. The machine can ask you to reconfirm your every decision in a worrisome way. "Are you absolutely sure that you want to retrieve that file? It might be the wrong one. You're not going to accidentally erase it, are you? I mean, what if the machine crashes while I'm getting it? Anything is possible. Think about this decision."

7) **Animals.** I suppose one can get carried away and have animal noises come out of the computer instead of voices. Why not? A dog could bark so many times to mean yes or no. You might even have a variety of sounds from the machine. A moo or a meow would amuse everyone. I personally like the idea of a mooing computer. This might be particularly interesting as a screen-saver sound effect too. Imagine a roomful of these machines loaded with the cow module during the lunch hour—all mooing.

8) **The Whining, Complaining Girlfriend.** This is always good for the bachelor computer user. Every so often the computer can blurt out something like, "You never talk to me! We never do anything to gether. You don't take me anywhere. You never pay any attention to me. You take me for granted!"

These are just the tip of the talking computer iceberg. We can expect these modules and more goofy ones once the computer begins to speak. It should be funny. ■

© 1992 by John C. Dvorak. All rights reserved. *John C. Dvorak graduated from the University of California. He is a contributing editor of* PC Magazine *and* MacUser, *and is considered by many to epitomize the contrarian view of things—a charge that he vehemently denies. Dvorak's motto is: If you have nothing nice to say, then don't say anything at all.*

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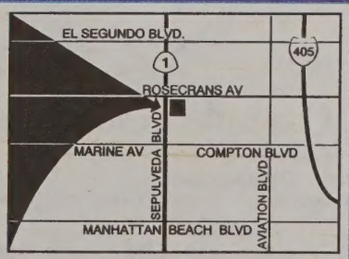

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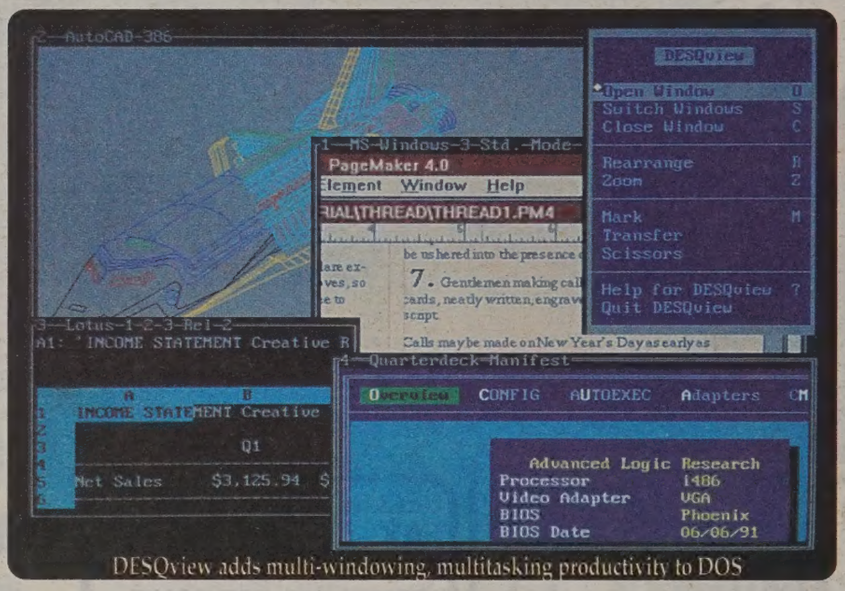

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We've never been confused about our role. We believe software companies exist to make your job easier and your working day more productive. When publishers step out of that mold and begin to tell you what hardware you need and that you should throw out somebody else's perfectly good software—well, they simply are not operating in your best interest.

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If you like a program that only runs in MS Windows, like Wordperfect for Windows, DESQview 386 supports your choice. If you prefer a spreadsheet that runs in DOS, Lotus 1-2-3 Release 3, for example, we support that too. In fact, DESQview 386 lets you run your favorite DOS and Windows programs side-by-side.

Have Your Cake and Eat It, Too.

DESQview 386 comes with QEMM-386, the number one memory management utility, and Quarterdeck Manifest, the award-winning memory analysis and monitoring program. Between them, they assure you every last 'K' of memory is put to use.* In many cases, QEMM can mean the difference between running the TSRs you want and not having enough memory.

And DESQview is an open doorway to the future, too. Our next step up, DESQview/X, opens your PC to a network full of possibilities, including graphic workstation standards—X Window System software—all while retaining the compatibility of DESQview.

If you're as committed to DOS as we are, and feeling left out by the so-called industry leaders, take heart. There's no reason to leave DOS. If more productivity is what you need, we can provide it.

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* DESQview makes multitasking and windowing available to users of 286-class machines with similar memory efficiencies through QEMM-50/60 for IBM™ PS/2 50 and 60 users and QRAM for other 286 users. ©1992 Quarterdeck Office Systems. Trademarks are property of their respective owners.

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